

Public Health in Rajasthan

SHIV CHANDRA MATHUR



State Institute of Health & Family Welfare, Rajasthan, Jaipur

Mission

State Institute of Health & Family Welfare, Rajasthan Is committed to improvement in Health Care through HRD, Health Service Research, Consultancy and Networking aiming at enhancement in the quality of life.

संकल्प

राज्य स्वास्थ्य एवं परिवार कल्याण संस्थान राजस्थान का यह संकल्प है कि प्रदेश के सभी सार्वजनिक चिकित्सा संस्थानों के माध्यम से दी जा रही चिकित्सा एवं स्वास्थ्य सेवाओं की गुणवत्ता में उत्तरोत्तर सुधार हो । इस उपलब्धि के प्रयास में संस्थान मानव संसाधन विकास, स्वास्थ्य सेवाओं में शोध, परामर्श एवं अन्य संस्थाओं से सामंजस्य हेतु सदैव प्रयासरत है ।

Public Health In Rajasthan

Editor

Shiv Chandra Mathur

Grates for CLIC-CPHE, Bangalore
from Dr Shiv Chandra Mathur
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Dr. Digambar Singh
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Foreword

In the last three years, a number of new schemes have been initiated in the health sector of Rajasthan. This includes several components of NRHM, RHSDP and NACP-III. Concurrently we are increasing the capacity of Hospitals, CHCs and PHCs to deliver the best possible Medical care from the public facilities of the state.

In this process of strengthening Medical and Health care, we have not only added large task forces of Health professionals within our system but have also build partnership with several agencies who would contribute their might to our efforts. Eventually it becomes mandatory to apprise every new comer with our ongoing activities. In this background, a Monograph on '**Public Health in Rajasthan**' can be of great help to one and all concerned with Health sector. Since it covers every activity of Health sector, it will be a useful possession for all Doctors working in peripheral facilities as well as for policy planners and researchers at the state level.

I commend this initiative of SIHFW, Rajasthan at this juncture when the Institute is starting several activities through State Health System Resource Centre. I wish them all success in their endeavors.

I shall also like to urge upon all the officers of the Health Department to make best possible use of this Monograph.


(Dr. Digambar Singh)

Preface

*Capacity development of the Health System is the mission of SIHFW, Rajasthan. This is being conducted through in-service training of health professionals and operational research which pave the way for mid-course corrections. Capacity of health professionals can also be enhanced by providing reading material to them on the job. It is to fulfill this obligation that we are bringing out **Public Health in Rajasthan** in early 2007. This book is being published with a broad outlook. It covers almost each functioning area which any officer working in government health system is expected to know.*

Genesis of this publication is rooted in 'Organization Behaviour and Community Health' which I edited three times between 1996 and 2001. Present book is a revised, refined and restricted version of earlier training monograph from which we have separated the chapters on Organization Behaviour. Thus in all humility, it can be labeled as a rapid reader for the Doctors working at peripheral facility. If they use it sincerely, they would certainly enhance their potential as well as the capacity of facilities managed by them.

I am grateful to all the authors for the time and energy invested by them in contributing their expertise. It was a pleasure for me to edit their writings to induce a unidirectional current in this monograph. I shall also like to bring on record, a sense of sincere gratitude to Sh. R.K. Meena, Principal Secretary-Health and Mrs. Shubhra Singh, Secretary FW-cum-Mission Director, NRHM of Government of Rajasthan whose generous support is consistently adding to the capacity of SIHFW, Rajasthan. Cooperation extended by Sh. R.K. Sharma, Registrar and team of support staff of SIHFW, Rajasthan in bringing out this volume is greatly appreciable.

Last but most relevant lead for this monograph has been obtained from Dr. Pramila Mathur - my better half - who for two decades as Medical Officer brought to me the first hand information and reinforced my convictions on what skills are required at the cutting edge in health sector.

I hope that readers will keep on providing the feedback to SIHFW, so that we may improve future editions.

चैत्र शुक्ल रामनवमी संवत् २०६४
March 20, 2007

Shiv Chandra Mathur

Public Health Facilities in Rajasthan

(District Hospitals, CHC's and Upgraded PHC's)



- District Hospital
- ✦ CHC
- ⊠ Medical College Hospital
- ▲ Upgraded PHC

Note : In addition there are 23 Medical College Hospitals, 1500 PHCs & 10500 Subcenters

Public Health is an art and science of preventing disease, promoting health and prolonging life through organized community efforts.

C.E.A. Winslow

INDEX

Chapter 1	National Rural Health Mission <i>Shiv Chandra Mathur</i>	1
Chapter 2	Reproductive and Child Health : RCH-2 <i>Shiv Chandra Mathur</i>	8
Chapter 3	Population Policy of Rajasthan <i>Shiv Chandra Mathur</i>	13
Chapter 4	Immunization Program <i>B.N. Sharma</i>	19
Chapter 5	Integrated Child Development Services <i>Shiv Chandra Mathur</i>	31
Chapter 6	Maternal Health in Rajasthan <i>Shiv Chandra Mathur and Kusum Mathur</i>	38
Chapter 7	Support from Unicef to Health Sector <i>Satish Kumar</i>	43
Chapter 8	UNFA in Rajasthan Programmes and Priorities <i>Hemant Diwivedi and Sunil Thomas Jacob</i>	51
Chapter 9	HIV /AIDS in Rajasthan <i>B.L. Chaudhary and Nupur Prasad</i>	58
Chapter 10	Tuberculosis Control <i>R.S. Sisodia</i>	67
Chapter 11	Leprosy Control <i>S.P. Sharma</i>	76
Chapter 12	Blindness Control <i>Shiv Chandra Mathur and S.P. Sharma</i>	82
Chapter 13	National Vector Bone Disease Control Program <i>M.L. Jain and Suneel Bhatnagar</i>	86
Chapter 14	Integrated Disease Surveillance Project <i>M.L. Jain and Suneel Bhatnagar</i>	95
Chapter 15	Endemic Fluorosis in Rajasthan <i>Shiv Chandra Mathur</i>	116
Chapter 16	Computization of Public Health Management Information System in Rajasthan <i>Adesh Chaturvedi</i>	123

Chapter 17	Health Management Information System in Rajasthan <i>J.P. Jat</i>	127
Chapter 18	Medicolegal Aspects of Injury and Postmortem <i>P. Sarswat</i>	140
Chapter 19	E.S.I. Scheme in Rajasthan <i>O.P. Gupta</i>	152
Chapter 20	NGOs and Health <i>Narendra Gupta</i>	162
Chapter 21	Consumer Protection Act <i>Jagdish Singh</i>	169
Chapter 22	Behavior Change Communication for Health <i>Vishal Singh</i>	183
Chapter 23	Rajasthan Health System Development Project <i>A.S. Dua</i>	191
Chapter 24	Rational Drugs Use <i>Adesh K. Mathur</i>	201
Chapter 25	Unfinished Agenda <i>Shiv Chandra Mathur</i>	210

Appendices

1.	Demographic profile of Rajasthan	221
1a.	Demography and Health Facility in District	222
2.	Health Facilities in Rajasthan	223
3.	Evolution of Health Care Services-	
3a.	Five Year Plans	224
3b.	Committees	225
3c.	Years of launching National Health Program	226
4.	MDG and Goals for XI Five Year Plan.	227
5.	Health care Facilities in Rajasthan	228

National Rural Health Mission

Shiv Chandra Mathur

It is to operationalize the agenda of common minimum program that a missionary approach is being adopted to deliver health care. This was formalized through a cabinet decision by the Union Government in first week of June 2005 which led to the launch a National Rural Health Mission (NRHM). It seeks to provide universal access to equitable, affordable and quality health care which is accountable and at the same time responsive to the needs of the people. Such a care aims at reduction of child and maternal deaths, population stabilization, gender and demographic balance as well as effectively managing the determinants of health. In this process, the NRHM would help achieve goals set under the National Health Policy and the Millennium Development Goals. To achieve these goals NRHM will:

- Facilitate increased access and utilization of quality health services by all.
- Forge a partnership between the central, state and the local governments.
- Set up a platform for involving the *Panchayati Raj* institutions and community in the management of primary health programs and infrastructure.
- Provide the opportunity for promoting equity and social justice.
- Establish a mechanism to provide flexibility to the states and the community to promote local initiatives.
- Develop a framework for promoting inter-sectroal convergence for promotive and preventive health care.

Rajasthan was identified as one of the eighteen high focused state where a number of interventions under NRHM were proposed.

Objectives

- Reduction in child and maternal mortality.
 - Universal access to public health care services.
 - Universal access to services for food, nutrition, sanitation and hygiene.
-

- Prevention and control of communicable and non-communicable diseases.
- Access to integrated comprehensive primary health care.
- Population stabilization, gender and demographic balance.
- Revitalize local health traditions and mainstream AYUSH.
- Promotion of healthy life styles.

Expected Outcome:

At national level

- IMR reduced to 30/1000 live births by 2012.
- Maternal Mortality reduced to 100/100,000 live births by 2012.
- TFR reduced to 2.1 by 2012.
- Malaria Mortality Reduction Rate -50% upto 2010, additional 10% by 2012.
- Leprosy prevalence reduced from 1.8 in 2005 to less than 1 per 10,000.
- Maintain 85% TB cure rate and sustain planned case detection rate.
- Upgrading Community Health Centers to Indian Public Health Standards.
- Increase utilization of FRU; raising bed occupancy of referred cases from less than 20% to over 75%.

At community level:

- Availability of trained community level worker, ASHA at village level.
- Provision of immunization, ante/post natal check ups and delivery services through a fixed day approach at *Anganwadi Centre* (MCHN days).
- Availability of generic drugs for common ailments at public facilities.
- Access to good medical care through assured availability of doctors, drugs and quality services at PHC/CHC level
- Assured referral-transport systems to reach these facilities in time.
- Improved access to immunization using Auto Disabled Syringes.
- Improved facilities for institutional deliveries through provision of referral transport, under the *Jannani Suraksha Yojana (JSY)*.
- Availability of assured health care at reduced financial risk through pilots of

Community Health Insurance.

- ▶ Availability of safe drinking water.
- ▶ Provision of household toilets.
- ▶ Improved outreach services through mobile medical units.
- ▶ Increase awareness about preventive health including nutrition.

Strategies

- ▶ Promote access to improved health care at household level through the female health activist i.e. ASHA.
- ▶ Health Plan for each village through Village Health Committee.
- ▶ Strengthening sub-centre through clear quality standards, better community support and an untied fund to enable local planning.
- ▶ Strengthening existing PHCs through better staffing, clear quality standards, better community support and an untied fund to enable the local management committee to achieve these standards.
- ▶ Provision of 30-50 bedded CHC per lakh population for improved curative care. (IPHS defined personnel, equipment and management standards, its decentralized administration by a hospital management committee)
- ▶ Preparation and implementation of an inter sector District Health Plan
- ▶ Integrating vertical health and family welfare programs at national, state, district and block levels.
- ▶ Technical support to Mission at all levels to better public health.
- ▶ Strengthening capacities for data collection, assessment and review for evidence based planning, monitoring and supervision.
- ▶ Formulation of transparent policies for deployment and career development of human resource for health.
- ▶ Developing capacities for preventive health care at all levels for promoting healthy life style, reduction in consumption of tobacco and alcohol etc.
- ▶ Promoting non-profit sector particularly in underserved areas.

The Supplementary strategies of the mission include:

- ▶ Regulation for private sector to ensure availability of quality service to

citizens at reasonable cost.

- ▶ Promotion of public private partnership.
- ▶ Mainstreaming AYUSH - revitalizing local health traditions.
- ▶ Reorienting medical education to support rural health issues including regulation of medical care and medical ethics.
- ▶ Effective and visible risk pooling and social health insurance to provide good quality hospital care.

Organization

Mission at the state level has a Governing Board chaired by the Chief Minister and co-chaired by the Health Minister with Ministers and Secretaries from different development department as its members. State Health Society under the chair of Principal Health Secretary oversee the execution of activities envisaged under NRHM in Rajasthan. Secretary Family Welfare, GOR is ex-officio Mission Director of NRHM. She is being helped by the State Project Management unit as well as by the four Directors of Medical and Health Department of GOR. NRHM has made provision of hiring services of subject specific Consultants on contractual basis to strengthen the state program officers.

NRHM components in Rajasthan:

ASHA : During the period of mission, it is proposed to provide a primary health worker over every 1000 population as Accredited Social Health Activist (ASHA). Rajasthan has ventured by utilizing the services of social mobilizer of ICDS as ASHA. Since the Women and Child Department designated them as '*Sahyoginis*', under NRHM the primary health workers in the state are designated as '*ASHA-Sahyogini*'. Their induction started with a six days orientation on first hand book for ASHA prepared by Government of India. Since Government of Rajasthan has now identified the State Resource Centre of Adult Education Program as ASHA Resource Centre, they are working on a new strategy of compiling the remaining handbooks for ASHA and proposing a ten days orientation. It is urged upon all the Medical officers to go through the handbook of ASHA to take in cognizance the expected capacity, resource at her disposal and support to be provided to ASHA by the health care system of the state. Throughout Rajasthan, 22755 *ASHA Sahyoginis* have been oriented on first hand book by the end of September 2006

Emergency Obstetric Care : In order to expedite the reduction of maternal

mortality and morbidity, round the clock availability of emergency obstetric services is being ensured in selected medical care facilities. It is designated as 24 x 7 EmOC services, 360 facilities throughout the state have been identified for these services. This implies that in all CHCs, sub-district and district hospitals, appropriate labour room along with facilities for emergency obstetric care will be initiated after undertaking necessary civil works, procurement of equipment and drugs and orienting the medical care professionals by imparting essential skills to them. Basic EmOC Centers have been established at 94 of the 172 targeted facilities by middle of 2006. NRHM directorate has recorded 25853 parturitions on account of 24 hour delivery facility in the first half of 2006-07. Beside imparting skills to attend births at peripheral facilities, a fairly good number of Medical officers shall be oriented to acquire skills to provide anesthesia required during obstetric interventions and perform caesarian section.

Janani Suraksha Yojna : NRHM has prioritized the actions required to reduce the MMR and IMR in Rajasthan by promoting the institutional delivery. The later is incentivised through a scheme designated as JSY. Scheme has envisaged the provision of Rs. 700 to a woman seeking services of a health facility for delivery in rural area and Rs. 600 in urban area. Concurrently ASHA shall be rewarded with Rs. 600/ for bringing the pregnant woman for delivery to a health facility. Scheme is being further boosted by provision of 'helpline' in each district to be facilitated by an identified NGO. These helplines will functionalize a network of facilitators and mobility (taxi-van) owners to make vehicle readily available for a needy pregnant woman to reach to medical care facility in time. Mission has adopted a generous approach permitting the utilization of untied funds in making timely payment to women in post-partum period and ASHA accompanying them. Within first year of initiating this activity there is a substantial achievement. By the middle of 2006, number of JSY beneficiaries compiled at state level was 46482.

Prioritizing Management : Almost 100 professionals have been engaged in Rajasthan on contract for improved program management. This is the very first occasion when the State has contracted such a sizable number of professionals in the health sector. State and District Management Units have been established to give thrust to the operation of various activities envisaged in the NRHM. These management units are expected not only to develop the action plans but also monitor and evaluate them. They would provide technical and management support to the activities of the mission capitalizing on optimum use of information technology. The management unit is also responsible for

computerization of data collected from various levels, its analysis and making appropriate changes in the action plan to ensure effective implementation. Capacity building of the officers and personnel of health department on concept of the mission, activities, proposed action plan and expected outcomes; management of flexi-pool funds. Performance linked timely disbursement of the allocated funds are also important tasks performed by the management units.

The management unit at the State level comprises State Program Manager, State Finance Manager, State Accounts Manager and State Data Officer. Similarly, the district management unit has a District Program Manager, District Accounts Manager and Data Assistant. They will work under CM&HO along with RCHO and Dy.CMHO posted on the district headquarters.

Other Initiatives

- *Telemedicine and Village Health Resource Centre* : For upgrading the district hospitals to render health services of international repute, telemedicine program is being initiated in the State. District hospitals would be directly linked to national level Hospitals through video conferencing. As a pilot, CHC Kaithun (Kota) would be linked to Sir Ganga Ram Hospital, New Delhi.
- *State Health System Resource Centre*: To provide technical assistance for the implementation of the Mission, the SIHFW Rajasthan is being strengthened as "State Health System Resource Centre."
- *Strengthening of 360 Health Institutions*: 360 PHC/CHC would be strengthened to provide round the clock quality health care services.
- *District Health Action Plan*: To achieve decentralized planning under the Mission, every district is preparing a district specific health action plan. This task is being carried out with the technical assistance of selected NGOs.
- *Strengthening of Community Health Centres*: Based on the Indian Public Health Standards, all the CHC are being strengthened in terms of infrastructure, human resource and equipments.
- *PC-PNCDT Cell*: In view of increasing adverse sex ratio in the state, a PC-PNDT Cell has been constituted. It would provide technical support to prevent misuse of pre conception/pre natal sex detection.
- *JSY-Help Line*: It is being developed in one block each in all the district to strengthen JSY.

- *Public Private Partnership:* Management of selected Primary Health Centers will be outsourced as public private partnership initiative to ensure availability of quality services.
- *Information, Education and Communication:* The Department has identified four main IEC themes viz sex selective abortion, child marriage, institutional delivery and small family for 2006-07.
- *Strengthening Logistics:* Drug warehouses are being strengthened for fair distribution of medicines and equipment in an effective manner.
- *Health Insurance:* A pilot on Universal Health Insurance Scheme (UHS) will be launched in eight districts, covering BPL, minors and families above poverty line if they opt for scheme.

Further Reading

National Rural Health Mission: Meeting People's Health Needs in Rural area-Framework for Implementation (2005-2012); MOHFW, GOI, New Delhi.

Reproductive and Child Health

Shiv Chandra Mathur

Since 1974 international conference on population and development (ICDP) are being organized once a decade where all countries of the world participate. Such an event provide a forum for experience sharing and paving way for better management of population issues throughout the world. While 1974 conference held in Budapest stressed that development is best contraceptive, 1984 conference at Mexico City highlighted the need for Safe Motherhood. The 1994 ICPD at Cairo has proved to be a turning point in implementing family planning programmes throughout the world from a new end under the banner of Reproductive Health. Since the plan of action at ICPD was evolved for twenty years, as such no formal convention was held in 2004 but mid-term review of convention were conducted around the world. Every Medical Officer must understand the concepts of reproductive health and the management change proposed under the new banner. The age old system of numerical, method specific targets and monetary incentives be replaced by a broader system of goals and measures that focus on a range of reproductive child health services.

Thus the scope of family planning has been widened to a great extent by bringing in its fold issues like managing reproductive tract infections; empowering adolescent boys and girls; strengthening immunization and essential obstetric care, attending to the needs of the women in inter-pregnancy interval and providing effective child survival services. Changing signals of Programme to RCH services are lucidly illustrated in following table :

Paradigm shift from FP to RH

Category	Old Signal	New Signal
Primary goal	Meet norm of two child family	Still encourage smaller families, but help clients to meet their own health and family planning goals.
Priority services	Family planning, especially female sterilization	Full range of maternal and child health services
Performance measures	Number of Cases	Quality of care, client satisfaction, coverage measures
Management approach	Top-down target driven	Decentralized, driven by client needs
	Male dominated	Gender sensitive
Attitude to client	Motivate, persuade	Listen, assess needs, inform, advise
Accountability	To the bureaucracy	To the client and community

Specific action should be taken in five areas :

- ▶ Define a package of essential services
- ▶ Improve access to good-quality services
- ▶ Make services more responsive to client needs
- ▶ Make sure front-line workers have the skills, support and supplies they need
- ▶ Strengthen the referral system

Components of Reproductive Health Services include:

- ▶ family planning counseling, information, education and services
- ▶ prevention and treatment of RTIs and STDs
- ▶ prevention, clinical assessment and referral of HIV/ AIDS cases
- ▶ provision of safe, effective, affordable and acceptable contraceptives
- ▶ educating and empowering women particularly adolescent girls.
- ▶ management of abortion services within the context of MTP act.
- ▶ services for women's gynecological problems.
- ▶ preventing harmful practices such as female genital mutilation.

Existing Situation in Rajasthan

Like most of the other states of India, Rajasthan has also embarked on Reproductive Child Health project in 1997-98 for a period of five years. It was further extended upto March 2005 with the support of World Bank through Government of India. In eight districts during same period, decentralized plans were being implemented through UNFPA support under the banner of Integrated Population and Development Projects (I.P.D.). European Commission also supported these activities on the basis of sector reforms approach in ten districts of the state. Unicef supported similar activities in a cluster of three border districts of Rajasthan during the same period.

The RCH project has envisaged the strengthening of service delivery, training the health manpower and better management of the program. It emphasized on strengthening the clinical skills of Doctors and paramedical manpower through clinical skills training beside awareness generation programs. The training along with management of RCH programme was decentralized by making district as a base. Beside the existing three-tier system of training in the state, potential available in the various district hospitals and selected nursing homes to prepare competent manpower for reproductive health care was also exploited.

Unicef has equipped almost all peripheral health facilities of the state with a series of CSSM kits entitled kit A to kit L. Directorate of Medical and

Health Services of Rajasthan has published a booklet on CSSM kits which has enumerated in details the content of each kit. With support from yet another World Bank funded project under the banner of "IPP-IX". State has also upgrading certain "First Referral Units" and referral system for essential obstetric care. Medical officers placed in various peripheral units need to understand the referral lines from their place of work to facilitate the delivery of obstetric care.

Program objectives of RCH in the first instance in Rajasthan included:

- ▶ reducing IMR from 68.1 to 56.8 by 2011
- ▶ reducing TFR to 2.1 by 2011
- ▶ conducting maternal death audit of 50% of maternal deaths
- ▶ improving full ANC coverage from 16.6% to 90%
- ▶ improving coverage of fully immunized from 37% to 100%
- ▶ improving CPR from 39% to 68% in 2011
- ▶ improving safe delivery coverage from 33.4% to 80%

When RCH project came to its termination, at the behest of Government of India, it was reviewed seriously. In the context of achieving the goals of national population policy by 2011 and millennium development goals by 2015 AD, it became mandatory for Government of India to extend the RCH project to second phase. Thus what transpired during initial seven years came to be called as RCH-I. Lessons learned during its implementation between 1997 and 2005 includes

- ▶ sluggish implementation
- ▶ public health facilities have low utilization rates
- ▶ infrastructure was not completed within the project time frame
- ▶ management capacity of the health system was found to be limited
- ▶ financial flows impeded the progress
- ▶ outcome indicators were not well defined

RCH-1 took an inefficient 'stand alone'; 'one size fits all' and 'supply' attention approach. Largely it proved to be a centrally designed scheme with little consultation. Thus while renewing the project from 2005 to 2010 (RCH-2), following strategies have been incorporated:-

- ▶ Project Management Units at State (SPMU) and district (DPMU) level have been established making provision for management inputs. With the availability of Finance Manager at State level and Accounts Manager in each district, streamlining of funds flow is expected.

- ▶ Strengthening of infrastructure at various level i.e. minor repairs and civil work at PHC, CHC and subcentres.
- ▶ Strengthening of training institutions like SIHFW, HFWTCs and ANMTCs. It is proposed to evolve the training plans on logical frame by assessing the needs and provide the issue based trainings.
- ▶ Quality of services shall be improved by setting standards, process protocols and indicators providing information on input/ output as well as outcome.
- ▶ Strengthening referral system by making provision for proper record keeping as well as mobility to the cases in case of emergency. Organizing camps in the field from time to time to provide specialist services in the periphery also helps referral.
- ▶ Logistics and supply system shall be improved. One proposal is to effectively use the essential drug list at every level. Second is establishing drug warehouses at each level.
- ▶ Management of information (HMIS) by consolidating the various formats and putting as much information as possible on line shall be initiated. Readers are requested to go through chapter 15 and 16 in this book.
- ▶ IEC shall be strengthened by focusing on strategies which induces behaviour change.
- ▶ Since the State has a large tribal belt, it is suggested to provide additional inputs in these area. It can be in terms of holding more frequent camps in the field, village contact drives, dai training and involving private doctors.
- ▶ Since the urban population of the state is fastly increasing, special projects for slum populations of large cities shall be developed.

Based on these strategies, RCH-2 project has been conceived with a requirement of Rs. 630 crores for the state of Rajasthan over five years between 2005 and 2010. Recently it has been incorporated with NRHM.

Summary

RCH project in the state in vogue covers the components of essential and emergency obstetric care(EmOC), essential newborn care, contraceptive delivery including MTP, providing adolescent friendly health services(AFHS), RTI/ STI care and providing routine immunization. In short, a reproductive health orientation includes:

- ▶ a satisfying and safe sex life free from the fear of disease, coercion and violence;
- ▶ the capability to reproduce, and the freedom to decide if, when and how

often, to do so; that is, access to both infertility services of the one hand and contraceptive services on the other.

- ▶ reproductive choice for women and men: that people have the right to be informed and have access to safe, effective, affordable and acceptable methods of family planning of their choice;
- ▶ access to safe and affordable abortion facilities;
- ▶ safe child-bearing: access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide for a healthy infant;
- ▶ access to services for the prevention and care of reproductive health problems in a culturally sensitive manner;
- ▶ special attention to adolescents whose reproductive health needs have been particularly overlooked.

There is no doubt that systematic execution of RCH project combined with sincerity and desired commitment of health professionals at the periphery can bring a substantial change in infant and maternal mortality and variety of reproductive morbidities in our state.

Further Readings

1. Guidelines for trainings under National F.W. Programme; NIHFW, GOI, New Delhi 1996.
2. Reproductive and Child Health Programs; *Schemes for Implementation*; MOHFW, GOI, New Delhi; October 1997.
3. www.publichealth.pitt.edu/supercourse/ppt/9871ppt

Population Policy of Rajasthan

Shiv Chandra Mathur

Population explosion is a global problem, Developed world is as much concerned as the developing countries on the issue of rapid growth of population. Eventually, a number of donor agencies and UN system have prioritized the population issues on their agenda. With growing experience of supporting containment of population growth, the funding agencies realized that the formulation of effective policies at national and state levels can create a niche in family planning sector.

Population policy is a deliberate effort by the government to influence the demographic variables like fertility, mortality and migration. A population policy suggests the measures which influence the size, distribution and composition of population. The later half of the twentieth century is full of examples of policy formulation and its implementation. In India, for almost five decades, it was taken for granted that formulation of population policy is the prerogative of central government. A new era has now begun when different states have started forming population policies of their own. This paper narrates the transition of policy formulation from center to state level and experience of formulating population policy in Rajasthan.

The first population policy in India was drafted in 1976. It was an expression of the philosophy of *development as the best contraceptive* - a rhetoric coined by Dr. Karan Singh, the then Union Health and Family Welfare Minister. In fact this policy gave the momentum to legislate the age at marriage and search the means to enhance female literacy in India. The course of events in family planning sector during the emergency period pushed the population policy far behind the center stage. With changing governments and rapidly changing concepts for social development, the need to reformulate the population policy remained long due at central level. It was only at the beginning of nineties that an expert committee under the leadership of Dr. M.S. Swaminathan started working on population policy. An excellent draft was prepared and submitted to the central government which for combination of reasons could never ratify it. But this inertia gave rise to a new momentum where now different states have started formulating policies of their own. The state of

Andhra Pradesh has given a lead, subsequently followed by Rajasthan, Madhya Pradesh and Uttar Pradesh.

Policy Formulation

Funding agencies like UNFPA and USAID, while supporting the policy formulation exercise, have given a professional input to this process. In all the states quoted above, the policy formulation was initiated as the process to identify issues and challenges in managing population growth. This could be done through a series of workshops where a cross-section of stakeholders are involved. In Rajasthan, the IIMR organized two such workshop in 1998 involving academicians, bureaucrats, technical experts, politicians and NGOs involved in service delivery. an expert committee through reviewed the various papers presented in these workshop to develop a policy draft. This draft was finalized only after its presentation and discussion with the concerned Minister and Secretaries of various development departments. Subsequently, the draft was processed in the government and placed before the cabinet for ratification. The output so available in the shape of policy was then disseminated.

The elements of population policy of Rajasthan include rationale, objectives and goals, targets, implementation measure including the new institutional arrangements. Along with the release of policy, a workshop was organized on development of strategies for implementation of population policy. This workshop paved the way for preparing an action plan.

Rationale

Rajasthan is one of the states where the rate of population growth is the highest in the country. According to 1991 census, the decadal growth rate of population in Rajasthan was 28.4 percent, which is very high in comparison to the national figure of 25 percent. Arresting the galloping rate of population growth remains a difficult of 25 percent. Arresting the galloping rate of population growth remains a difficult and challenging task for the state government. While the population of Rajasthan was 4.4 crore in 1991, it has crossed the mark of 5 crore in late nineties. It is assumed under the present circumstances that by 2003, the state's population would cross 6 crore. This implies an average annual growth of 14.3 lakh persons. As a matter of fact 40 percent of the state's population is below the age of 15 years and 47 percent of female population is in the reproductive age. According to present estimates, the population of Rajasthan will not reach to stabilization point (TFR:2.1) before the year 2048. By that time it will be around 10 crore. The impact of such an increase

in population on weak economic system of the state and lives of the people is well imaginable. In such a scenario, the population management programme of the state needs reconsideration and a new and separate population policy has to be developed and implemented. Such a policy should be a wellconcerted effort of the government for improving the living standards of the people.

Rajasthan's Population : Possible Trends

Year	First Scenario*	Second Scenario*
1996	4.96	
2001	5.59	5.51
2006	6.23	5.90
2011	6.88	6.23
2016	7.39	6.40
2021	7.94	6.76
2026	8.45	7.10
2031	8.95	7.36
2036	9.42	7.54
2041	9.88	7.67

Goals for Population Stabilization

The basic goal of Rajasthan's population policy is to achieve replacement level fertility by the year 2016. It can be achieved only by:

- ▶ Increasing contraceptive prevalence rate to the order of 68 % by 2016;
- ▶ Creating an awareness on legal age at marriage in 80 % of population by 2005;
- ▶ Raising the average age of marriage for girls to 18 years by 2010;
- ▶ 90 % of pregnant women may receive full ante-natal care by 2010 may help reduce maternal mortality;
- ▶ Increasing institutional deliveries to the tune of 50 % and all deliveries to be attended by trained persons by the year 2010;
- ▶ 90 % of children are fully immunized by the end of the year 2000.
- ▶ All children are given ORS in case of diarrhea and 70 percent of them get five doses of Vitamin 'A' by the year 2007; and
- ▶ The policy also directs the other sectors to achieve certain goals like raising the female literacy, reducing the severe and mild malnutrition, reducing the prevalence of child labor and increasing the age at marriage.

Population Density in Rajasthan : 1901-2001

Year	Person Per Sq Km.*
1901	30
1951	47
1961	59
1971	75
1981	100
1991	129
2001	165

Operational Strategies

- Preparation of a package of reproductive and child health services.
- Improving the management of service delivery system.
- Creation of an atmosphere that will nurture a positive attitude for small family norms.
- Encouraging participation of panchayati raj institutes (PRI's), voluntary organization, private sector, cooperatives and other organizations to do social awakening and play as partners in the programs.

It would require the creation of conducive environment for small family norm, strengthening IEC, striking a gender balance, and institute certain community awards. Further, an effective inter-sectoral coordination would be required. It would entail effective contribution from corporate and cooperative sectors, education, NGOs, women and children development, PRIs, urban local bodies, revenue, agriculture, information and publicity, forest and environment and district collectorates.

Implementing Infrastructure

Effective implementation of suggested strategies needs to be overseen by State Population Council. This body has already been constituted under the chairmanship of the Chief Minister with cabinet ministers of development departments and leaders of opposition parties as its members. Creation of a separate Population Resource Centre as its secretariat is also being attempted. At the local level, the District Family Welfare Coordination and Monitoring Committee will be constituted with Zila Pramukh as its chairperson. Elected representatives of Zila Parishads, MLAs/ MPs representing the district and district level officers of health, ayurveda, education, agriculture and ICDS departments, representatives of NGOs and women social workers will be the members. The main functions of these committees will be to promote innovative schemes, to review programme performance, to suggest way of improving the quality of service and to mobilize additional resources for the program.

Similarly, block and village committees will be headed by the *Pradhan* of Panchayat Samiti and *Sarpanch* respectively. These committees will have officers and employees of various development departments and people's representatives as members. Lastly, the policy document has defined the role of as many as 20 departments of the state in implementing the policy.

Monitoring and Evaluation

Although the thrust in the policy was to stabilize the population of

Rajasthan by 2016, it was cut short to achieve by 2011 AD. This was done on advise of GoI by the state government when Rajasthan was included in the Empowered Action Group (EAG) States. The EAG states subsequently termed as high focused states were to get priority in central assistance. Eventually GoI wanted feedback on consistent basis. Thus it became mandatory to effectively monitor implementation. The concurrent evaluation required a baseline information from which comparisons in future could be made. Incidentally, the third round of nation-wide large survey of fertility under the banner of NFHS-3 has just completed. It is a collaborative effort of MOHFW-GoI and IIPS, Mumbai, through a USAID-funded project. Table summarizes the facts elicited in the three rounds of NFHS in Rajasthan. Indirectly, they point out our pace of policy implementation.

Key Indicators for Rajasthan in NFHS

	NFHS-1 1992-93	NFHS-2 1998-99	NFHS-3 2005-06
Women in 20-24 age married by 18 (%)	69.5	68.3	57.1
Total Fertility Rate	3.63	3.78	3.21
Current Contraceptive Use (%)	31.9	40.3	47.2
Unmet need for Spacing (%)	10.8	8.7	7.3
Unmet need for limiting (%)	9.0	8.9	7.4
Mothers with 3 ANC's during last birth (%)	18.1	23.6	41.2
Institutional Deliveries (%)	12.2	21.5	32.2
Births assisted by trained persons (%)	19.3	35.8	43.2
Fully Immunized Children 12-23 months (%)	21.1	17.3	26.5
Children < 3 yrs who are stunted (%)	41.8	52.0	33.7
Children < 3 yrs who are wasted (%)	21.2	11.7	19.7
Children <3 yrs who are underweight (%)	44.3	50.6	44.0
Women with below normal BMI (%)	NA	36.1	33.6
Ever married Anemic Women I 15-49 yr (%)	NA	48.5	53.1
Anemic Children (6-35 months) (%)	NA	82.3	79.6
Infant Mortality Rate (per 1000 LB)	73	80	65

Note: Another significant reproductive health indicator i.e. MMR as revealed through SRS by Registrar General of India has come down from 677 (1999) to 445 per 100000 live births in 2003 in contrast to the national average of 300.

To summarize, the policy deals with the structure, implementation, monitoring and evaluation of the RCH programme. It is a reflection of the state government's commitment for overall welfare of the people of Rajasthan. At every level, i.e. from secretariat to panchayat, people's cooperation will be sought and ensured for implementation of this policy. Although the primary responsibility on policy implementation is of the Medical, Health and Family

Welfare Department, it cannot succeed without full cooperation and active support from other departments and sectors, i.e. department of education, women and child welfare, social welfare, NGOs, PVOs and corporate sector. Latest available performance indicators for the state from different sources gives us following picture of progress on population policy in March 2007 :-

Indicator	Goal for 20011-12	Latest achievement by Rajasthan
Birth Rate	21	28.6 (SRS-2005)
Infant Mortality Rate	32	65 (NFHS-3, 2005-06)
Maternal Mortality Rate	148	445 (SRS-2003)
Death Rate	7	7 (SRS-2005)
Annual Growth Rate of Popu.	1.2	2.5 (Census 2001)
Total Fertility Rate	2.1	3.2 (NFHS-3, 2005-06)

In the newly generated circumstances of missionary approach through NRHM, implementing population policy intensively should be on the priority of the State Government. The state government will make every possible effort to ensure its success.

Further Reading

1. National Family Health Survey 2005-06 (NFHS-3), Fact sheet of Rajasthan; IIPS Mumbai.
2. *Population Policy of Rajasthan*, Department of Family Welfare, Government of Rajasthan, Jaipur, 1999.
3. *Shiv Chandra* : Developing Manpower for Reproductive and Child Health Service in Rajasthan; Manpower Journal, Vol.XXXV, pp 41-50,1999.
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Immunization Program

. B.N. Sharma

India has one of the world's largest population. Eventually the number of children who suffer from preventable diseases and deaths is also large. Looking to the staggering number of infant and childhood deaths due to vaccine preventable disease, GoI framed an expanded program on Immunization (EPI) in 1978 which was converted to universal immunization program (U.I.P.) in 1985. Presently the program is integrated with NRHM. The shift from EPI to UIP envisages following parameters.

Parameters	UIP	EPI
Coverage	All eligible	Feasible ones
Inclusion of districts	Selected in phased manner	All at once
Monitoring unit	District	State
Target	Pregnant women and infants	Pregnant women and
Additional input	Manpower and equipments	Children
Measles vaccine	Essential	Existing
Typhoid vaccine	Excluded	Not included
Reporting	Monthly fixed date	Included
Trailing	Essential in year of launching	Routine
Monitoring	Fortnightly at PM level	Routine
Evaluation	Base line/ once every two years	Monthly at government level
Focus Client	Infants and P.W.	At random Children

Routine Immunization is provided through a network of health facilities. In Rajasthan fixed immunization days (MCHN Days) once in a month are held as out reach sessions at sub-centre villages, *Aanganwari* Centres and other villages Classified under "C" Category. MCHN days is also an opportunity to provide other services viz ANC, contraception distribution, Vit-A administration and nutrition counseling.

Since the beginning of U.I.P., vaccine coverage evaluation surveys are being conducted to assess the extent of coverage. State wide Reproductive Health Survey conducted in 2002-03 revealed that 48.2% children were fully

immunized. Another survey conducted by SIHFW at Tonk District found that fully immunized children were 43.2% in December, 2005.

Objectives of UIP :

- Achieving 100 percent coverage of pregnant women and infants by 1990.
- Elimination of neonatal tetanus by 1996.
- Eradication of poliomyelitis by 2000 AD.
- Reduction in the incidence of measles (90%) and deaths (95%) by 1995.
- Reduction in the incidence of pertussis, diphtheria and childhood tuberculosis.

Since fourth MDG envisage to reduce 0-5 years mortality by 66%, and fifth goal aims to reduce maternal mortality by 75% upto 2015, the above objectives of UIP have been revised. Now eradication of polio is to be achieved by 2007; elimination of NNT by 2009; and reduction in measles mortality by 2010. This can be achieved only by sustaining high level of immunization coverage. Therefore, the major tasks before us are:

- To sustain high levels of immunization coverage
- To maintain high quality of immunization services.
- To maintain a reliable cold chain system.
- To ensure Injection safety.
- To ensure high level of program effectiveness.

National Immunization Schedule

Pregnant Women	TT-1 or Booster (preferably before 12 weeks).
One month after TT-1	TT-2
FOR INFANTS	
At birth	BCG and OPV-0 dose
At 6 weeks	BCG, DPT-1 and OPV-1
At 10 weeks	DPT-2 and OPV-2
At 14 weeks	DPT-3 and OPV-3
At 9 months	Measles
At 16-24 months	DPT and OPV
At 5-6 years	DT (two doses at monthly interval)
At 10 and at 16 years	TT (Single dose if earlier vaccinated completely)

If the sessions are held regularly, quality of the services are satisfactory, mothers informed of the immunization schedule, the attendance at the immunization sessions is likely to be in the estimated range. Children should not be returned un-immunized to keep "wastage rates" of vaccines low. If the attendance is routinely low, reasons for poor acceptance of services should be

identified and corrected.

Strategy

UIP makes routine immunization services available on a fixed days at fixed sites. It implies that cancellation of an immunization session is a breach of trust with the community. should be avoided at all costs. Sessions on an unscheduled day should be held only in case of an emergency such as an outbreak or for conducting supplementary activities for polio eradication. The community should be informed of these session well in advance.

All health facilities provide immunization services on fixed days. The periodicity of the services (daily, weekly, fortnightly or monthly) will depend on the number of children to be immunized in these centres. Outreach visits will be made to all large villages *at least* once a month by the ANM of the sub-centre covering these villages. The place of the immunization site in the village should be fixed. *Fourth* Thursday has been earmarked for this activity by Government of Rajasthan in villages having health facility or AWC. But in smaller villages Mondays have been fixed. These days are designated as MCHN days and sessions are held at AWC, or other fixed site. Antenatal care, contra-ceptive distribution, vitamin-A administration and nutrition counseling etc. is also carried out during these sessions.

Panchamrit : Five components of *Panchamrit* are:

- ▶ Safe Motherhood.
- ▶ Complete Immunization.
- ▶ New born care and exclusive breast feeding.
- ▶ Nutrition.
- ▶ Healthy and Happy Family.

It is essentially reinforcement of conducting immunization sessions in the outreach. Social mobilization is being ensured through MSS, ASHA *Sahyogini*, JMCs, SHG's, PRI's, NGO's etc. Recently introduced. ASHA shall work to generate awareness. She would motivate parents to ensure full immunization of children and pregnant women with required number of tetanus toxoid doses, She will be paid Rs. 150/- per session. Where ASHA-*Sahyogini* is not functional this amount will be paid to JM couple. TBA/Ward *Panch*/Social worker/ Volunteer in that order provided they belong to the same village.

In case of more than one motivator the incentive would be divided between them. Provision of Rs. 3000/- per month for a period of five months has been made to facilitate supervision and monitoring on MCHN days. This fund

can also be utilized by DRCHO to hire vehicle. Allocation of Rs. 6,300/- per month has been made for those DRCHOs who do not have vehicles to facilitate their mobility for seven days in a month.

RCHOs are being provided Rs. 4500/- per month to hire computer assistant. This amount will be reduced to Rs. 3,500/- per month where RCHOs have their own functional computers. They will also get financial assistance to purchase polythene bags for carrying vaccines. CM&HO office has also been provided with Rs. 1000/- per month as contingency fund. This fund will be used to send reports through E-mail, Purchase of CDs, Floppies, stationery items etc.

ANM shall not carry the vaccine, any willing person or NGO can carry vaccine from Depot Site in the morning of MCHN day and shall return the balance vaccines. Provision of Rs. 50/- per session or Rs. 1.50/- per km distance from Depot to session site which ever is more has been made which shall be paid through PHC I/c after due verification, who in turn will get the funds from DRCHO. This payment will not be made if the session is held at the vaccine depot site. It has been observed that immunization program is lagging behind in urban slums and urban marginalized areas. It has been decided to hire a retired ANM/LHV/ Male nurse on a contractual basis in these area. She will be paid Rs. 350/- per session. They shall organize four sessions per month and will get their supply of vaccination cards, vaccine carriers etc. from DRCHOs office. The contractual personnel themselves shall be responsible to collect the vaccine from vaccine depot site and deposit the balance immediately after the session.

Key Factors for the success of MCHN days:

- ▶ Integrated package as *Panchamrit*
- ▶ Social mobilization through ASHA-Sahyogini
- ▶ Waste disposal by Hub cutters red bags.
- ▶ Effective IEC through mikes, banners, posters, media, *gram sabha*.
- ▶ Improving involvement of PRIs
- ▶ Timely reporting in Healing (website of GoR for reporting data)
- ▶ Supervision and Monitoring.

Meticulous micro-planning and its implementation is critical to the success of MCHN days. Efficacy of the vaccines in preventing disease is optimal if the full course of the potent vaccine is given at the right age. Efforts are being made to start the immunization of children at 6 weeks of age and complete the three doses of OPV and DPT by 14 weeks or as soon as possible. Measles vaccine is to be given between 9-12 months. Children born in the institutions are given a

dose of BCG and OPV before discharge. This dose of OPV-0 is in addition to the primary series of three doses to be started at 6 weeks of age. Older unimmunized children may be given vaccines "on demand" if brought to the sessions.

Minor illness, including mild fever, cough and colds as well as malnutrition, are not a contra-indication to vaccination. Immunization should be deferred only if the children are seriously ill. The children should, however, be immunized as soon as they recover. The longer the immunization is delayed, the longer the child is exposed to the risk of infection. In case of history of convulsions, DT vaccine should be given in place of DPT vaccine. All vaccines can be given to a child with diarrhoea. All the vaccines must be available at an immunization session and the child should not be made to return due to non-availability of any vaccine. A child can be given more than one vaccine at the same session, such as DPT and OPV. If vaccines are being given by injection such as BCG and DPT or measles, the sites of the injection should be different. The Vaccines should be injected using a separate sterile syringe and needle for each injection. Vitamin A should be given along with measles at nine months of age.

Role of Medical Officers

The Medical officers of the PHCs must ensure that the distribution of essential supplies related to immunization are regular. All sub-centres have adequate supplies. Sufficient number of syringes and needles should be available at each sub-centre. They must provide additional assistance to pockets of low coverage. If the low coverage is due to a long-term vacancy, special immunization camps may have to be organized. If the low coverage is due to poor acceptance of services, IEC activities may have to be stepped up. They must also analyze surveillance reports.

Monitoring of adverse events following immunization is important to detect programmatic lapses. Serious adverse events including death following immunization must be reported within 24 hours. Other children vaccinated in the session should be examined to check for reactions and to provide treatment, if required. Cluster of cases (more than one case) is expected if the reaction was due to a programmatic error. Clustering of cases can also occur if the cause of the symptoms was due to incidental causes such as an infection, other non-immunized children of the same age-group in the neighbourhood of the affected child should also be examined to rule out temporal relationship between reported adverse effect and immunization.

The vaccine issue register must be checked periodically to ensure that the vaccines are being taken out only on scheduled days. The temperature record forms of the ILR and the freezer must be checked weekly. Random check of OPV vials for VVM is mandatory. Similarly T-series vaccine should be checked through 'Shake Test' for any precipitant. Monitoring of Immunization session should be done to ascertain injection safety and ensure that technique of vaccination is correct.

The Cold Chain Equipments

Walk-In-Coolers : The walk-in-coolers (WIC) are to store vaccines for three months. Thus they serve as warehouse for a region of 4-5 districts. It is important to know the location of WIC of your region so that in an emergency you may be able to collect supplies from there.

Deep Freezers (300 ltr) and Ice Lined Refrigerators (ILRs. 300/240 ltr) : These have been supplied to all districts and at WIC locations to store vaccines. The deep freezers are used for making ice-packs and to store OPV and measles vaccines.

Small Deep Freezers and ILRs (140 ltr) : The deep freezers are to prepare frozen ice packs which are used in cold boxes and vaccine carriers for transportation of vaccines. They are also used during the sessions to keep vaccine vials in the holes given in them. Storage of OPV is also recommended in deep freezers at - 20° C. All other vaccines are stored in the Lower Compartment of ILR. These vaccines are never to be kept on the floor of the ILR. Temperature should be recorded twice a day. At the time of defrosting the vaccines are to be shifted to the cold boxes in which required numbers of frozen ice packs have been already placed. In case of equipment failure or electric supply failure, transfer the vaccines to the cold boxes and shift them to alternate vaccine storage.

Use of ILR/Freezer :

Do's

- ▶ Keep the equipments in cool room away from direct sunlight and at least 10 cms away from the wall.
- ▶ Keep the equipments level.
- ▶ Fix permanent electric connection through voltage stabilizer.
- ▶ Keep vaccines neatly with space between the stacks for circulation of air.
- ▶ Keep the equipments locked and open only whenever necessary.
- ▶ Defrost periodically
- ▶ Supervise the temperature record at least once a week.

- ▶ Take immediate action if the equipments fail.
- ▶ Make holes on the sides for cold air to circulate.

Don'ts

- ▶ Do not keep any object on equipments
- ▶ Do not store any other drugs.
- ▶ Do not open unless necessary.
- ▶ Do not keep food or drinking water in them.
- ▶ Do not keep more than one month's requirements at PHC level and three months' requirement at district level.
- ▶ Do not keep expired vaccines.

Recording and Monitoring of Storage Temperature

Temperature of ILR and Deep Freezers should be recorded twice a day. This is done to ensure that at no time the temperature has risen above 8°C or has fallen below 2° C. Therefore, it is necessary to adjust the thermostat in different seasons so that the temperature is maintained within prescribed limits.

Cold Boxes : These are mainly to be used for transportation of vaccines. In emergency they can also be used to store vaccines. Before the vaccines are placed in the cold boxes fully frozen ice packs should be placed at the bottom and sides. The vaccines should be placed in cartons or polythene bags and then placed in the cold box. Cover the vaccines with a layer of fully frozen ice packs and close the cold box. The vials of DPT, DT and TT vaccines should not be placed in direct contact with the frozen ice packs.

Vaccine Carriers : Vaccine carriers are used to carry small quantities of vaccines (16-20 vials) for the outreach sessions. Four fully frozen ice packs with a little water are to be used for lining the sides and the carrier must be closed tightly. The vials of DPT, DT and TT vaccines should not be placed in direct contact with frozen ice packs.

Ice Packs : Ice packs are used to line the sides of cold boxes and vaccine carriers. The ice packs contain water and no salt should be added to it. The water should be filled upto the level marked on the side. If there is any leakage such ice packs should be discarded. The Ice Packs should be prepared in the deep freezer. Only fully frozen with little bit of water should be used. The ice packs are to be placed vertically on the floor of the deep freezer. At a time not more than 20-24 ice packs should be prepared. Once the ice packs are fully frozen, fresh set of ice packs can be added for freezing. The following steps should be followed to pack vaccines in cold box/ carriers:

► Take out cold box/ carrier and confirm that there are no cracks.

► Clean the cold box/ carrier.

► Take out required number of fully frozen ice packs from the deep freezer and wipe them dry.

► Place the ice packs in the cold box/ carrier and wait for few minutes for temperature to stabilize.

► Put the vaccines along the diluents in a carton/ polythene bag and place them in the box/ carrier.

► Place packing material between vials containing TT, DPT and DT and ice packs so that these vaccines do not get frozen.

► Secure the lid tightly.

► Do not keep the box/ carrier in sunlight or near a source of heat.

► Do not keep heavy object on them or sit on them.

► Open them only when required

Automatic Voltage Stabilizers (1 KVA) : One set of ILR and deep freezer (140 ltr) is to be connected through the voltage stabilizer. It provides an output voltage between 210-230 volts. If the input voltage goes below 150 or above 280 volts, the stabilizer automatically cut off the supply. This prevents damage to the equipments.

Maintenance of Equipments : The cold chain equipments are vital for maintaining the potency of the vaccines supplied under the immunization program. In order to avoid breakdown of these equipments, it is necessary to undertake preventive maintenance of the equipments. The responsibility to handle and maintain the equipments should be given to a dependable person. The District RCH Officer may also send the refrigerator mechanic every month to the PHC along with the vaccine supply to check the equipments and to do the preventive maintenance.

Tips for Maintaining ILRs/Freezer's

A. External	B. Internal	C. Technical
The exterior is clean.	Lid Seals properly without gap.	Temperature within prescribed limit (if no, set the thermostat as and when required.)
It is firm on the floor	Lid seal is clean	Voltage stabilizer is working properly and equipments are connected through it.
It is properly leveled.	Ice lining tu bes/ ice packs are in proper position.	Plug of the voltage stabilizer is fitted properly to the power line.

Its sides are at least 10 cm away from walls.	Ice lining tubes/ ice packs filled with water to proper level	Connections of equipments to voltage stabilizer are not lose.
It is away from direct sunlight.	Thickness of frost formation is less than 6 mm.	There is no abnormal noise.
Room is well ventilated.	Vaccines are neatly placed with space for air circulation	Compressor mounting bolts are tight.
It is opened only when necessary.	DPT, TT and DT are kept in the basket in the ILR and not touching the cooling surface.	
It is not being used as a table top.	Thermometer has been kept among the vaccines. Temperature is recorded twice a day and verified at least once a week by MO PHC.	

Defrosting and Cleaning

The temperature in the ILR/ deep freezer can rise if there is a thick layer of ice on the walls or at the bottom. Therefore, periodically defrosting should be done if the layer frost is more than 6 mm.

- ▶ Vaccines need to be shifted to cold boxes which has already been made ready by lining the walls and bottom with frozen ice packs.
- ▶ In case of deep freezer, shift the frozen ice packs to cold box.
- ▶ Switch off the power supply and remove the plug.
- ▶ Keep the lid open and allow the frost to melt.
- ▶ Never use any sharp object to remove the frost.
- ▶ Only warm water can be used to speed up defrosting.
- ▶ Wash inside and outside with warm water and mild detergent Allow the parts to dry completely.
- ▶ Connect the power supply.
- ▶ Turn the thermostat for maximum cooling. Observe the temperature and reset the thermostat.

The lid of the ILR/ deep freezer may get stuck immediately after closure for a few minutes due to negative pressure. Do not force open the lid. Wait for a few minutes and then try.

Distribution of Vaccines : The objective of good vaccine handling is to minimize the period of time in which all vaccines are exposed to temperature above 8°C. DPT, DT and TT vaccines may not be exposed below 0°C.

Sub-Centre/ Village level : The risk of cold chain failure is greatest at sub-centre and village level. For this reason, the health worker is the most important link in

the cold chain. Vaccines are not stored at the sub-centre level and must be supplied on the day of use. In order to keep vaccines safe at this level:

- ▶ Only required quantities must be supplied.
- ▶ The Vaccine carrier must have frozen ice packs.
- ▶ Immunization must be carried out in the shade,
- ▶ OPV and measles must be kept on an ice pack or in a cup of ice during the session.
- ▶ Only one vial of each vaccine should be out at a time.
- ▶ Vaccine vials opened for a session must never be used in subsequent sessions.
- ▶ For each vaccination, single sterile syringe and needle must be used.

The Medical Officer must assign the responsibility of vaccine supplies to a dependable person of the PHC, but the final responsibility for ensuring the cold chain rests on him. When administering vaccine to expectant mothers and infants at the site of immunization, care must be taken not to expose the vaccine to heat or direct sunlight. To do this the health workers must be instructed to:

- ▶ Select a site that is as cool as possible, preferably inside a room. If a room is not available, carry out immunization in the shade and not in direct sun.
- ▶ Open the carrier only when necessary.
- ▶ Remove vaccine and diluent from the vaccine container only when you needed it.

Take out only one vial of vaccine from the container at a time. Do not take the second vial from the carrier until it is needed. Secure the lid tightly after opening as soon as possible. Wrap the BCG ampule in a foil or a dark paper to protect them from heat and light. When vaccine is taken out of the vaccine carrier, vials must be placed on an ice pack. If no mothers or children are waiting, vials must be put back into the vaccine carrier until a beneficiary arrives.

Records on vaccine used must be updated regularly. A record of the vaccines administered must be kept. It is important to record the batch numbers and expiry dates of the vaccines used. If any vaccine is returned to the PHC, the reasons for non-use must be ascertained and corrective action taken. There should be no reason for returning of unopened vials from the outreach sessions if the sessions are well planned and vaccine issue is based on the estimated number of beneficiaries likely to attend the session. If such vials have been returned in cold chain, these vial should be used first. If there is any doubt about the quality of the reverse cold chain, do not use the vial.

PHC level : Vaccines are delivered to the PHC from the district stores. It is best

that vaccines be supplied at regular monthly intervals. This is because a PHC must not hold more than one month's stock. No vaccine should be stored at the sub-centres. Vaccine requirements must be estimated so that every infant and pregnant woman is immunized, and the adequate supplies are available. It is important that the right quantity of vaccine is indented. Too little vaccine will result in poor performance. If too much vaccine is obtained, some of them may expire or it may remain at PHC for a longer than the recommended time. The longer the vaccines are kept at the PHC, the greater is the risk of a cold chain failure. While distributing vaccines from the district store:

- ▶ Choose cold box of appropriate size. In general, a cold box (5 ltr) can accommodate one month's supply of PHC of 30,000 population and a cold box (20 ltr) for CHC of 1 lakh population.
- ▶ Check that the vaccine and diluent match with each other.
- ▶ No vaccines beyond expiry date is to be issued.
- ▶ Pack the vaccine in a cold box quickly to avoid exposure to heat and light.
- ▶ Diluent need not be kept in a cold box.
- ▶ Use the shortest route to the health centre.
- ▶ Transfer vaccines to ILR immediately on arrival at the health centre.

While distributing vaccines from the PHC store:

- ▶ Ensure the demand is based on the estimated beneficiaries. This will cut down the wastage eventually the health worker would not have to come back to the PHC to return unused vials.
- ▶ Vaccines with nearest expiry date should be issued first.
- ▶ Vaccines supplied earlier should be issued first.
- ▶ Expired vaccines should not be issued.

Check that DPT, DT or TT vaccines have not been frozen. If these have been frozen, do not use them. You can confirm it by shake test. Shake, the vial so that the sediment is completely mixed into the vial. If the vaccine is not uniformly mixed, or the sediment settles down at the bottom of the vial completely within 15 minutes, then do not use it. Diluent must be kept in ILR and issued to the field in vaccine carriers. The diluent should not be frozen as the ampoule are likely to crack when frozen. For the same reasons BCG ampoule should not be frozen. The ice packs used for lining the vaccine carriers should be fully frozen.

Vaccine Vial Monitor (VVM) : Lately the thermolabile vaccines are being sent with special labels on it. These labels have a special circular print, which changes color when exposed to heat. For color comparison special color indicators are available on the same labels. Medical Officers are urged to procure the literature

on VVM from District RCH Officer and make effective use of the new packaging of the vaccines.

In nutshell, a M.O. must ensure:

- Universal immunization coverage to all infants starting at 6 weeks of age
- Full course of the vaccines for each child by reducing dropout rates.
- Maintaining an efficient cold chain system.
- Regularity of services by having "fixed-day" and fixed-site".
- All vaccines must be available at each immunization session.
- That vials opened once are not reused in a subsequent session.
- That vaccines are issued on the day of the session or if necessary the previous evening,
- That the four ice packs of the vaccine-carrier are fully frozen.
- That vaccines which can be utilized during the day only are to be issued.
- That A.D. Syringes are used for immunization.
- That Mother-Infant Card are issued to all pregnant women and shall continue to be used for the infant.
- That counterfoil must be preserved by the health worker and utilized for follow up of the "dropouts".

Further Readings

1. Shiv Chandra : Process Evaluation of TTI campaign (20-26 April, 1998) in Rajasthan, SIHFW, Rajasthan, Jaipur, 1998.
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Integrated Child Development Services

Shiv Chandra Mathur

ICDS scheme reaches to the most neglected section of the society. Emphasis is laid upon the involvement of community by identifying and using the services of an enterprising woman from the same locality on voluntary basis. She is *Anganwadi Worker*. She is the key functionary of the program. Since the health of young children is inseparable from the health of mothers, women are also envisaged as beneficiaries of this scheme. The ICDS scheme was launched initially on experimental basis in thirty-three backward blocks way back in 1975. Within a short spell, a substantial change noticed in the communities where the project was launched, led to the replication of the scheme in other areas.

In the State of Rajasthan, it is functioning in all 237 rural development blocks and twenty urban wards. Recently scheme was started in 66 blocks anew with support from World Bank as a third phase of ICDS extension in Rajasthan. This has been done as a part of universalizing the ICDS programme in the State. It is executed by Department of Women and Child Development (WCD). Since all inputs in ICDS are directed towards improving health of mothers and children, the Medical, Health & Family Welfare Departments have been sharing the task of delivery of these services and monitoring the outcome based on health indices. In context of *Panchamrit Yojna* and observation of MCHN days, Department of Medical and Health in collaboration with WCD Department has issued circulars to enhance the effectiveness of ICDS in Rajasthan. In this background, Doctors must understand the concept, genesis, operational guidelines and expected outcome of ICDS.

Objectives

- To improve the nutritional and health status of children under six; to lay the foundation for the proper physical, psychological, and social development of the child;
- To reduce the incidence of mortality, morbidity and malnutrition and school dropout;
- To achieve effective co-ordination of policy and implementation among the various departments promoting child development; and

- To enhance the capability of the mother to look after normal health and nutritional needs of the child through proper nutrition and health education.

Beneficiaries

Children below six years broadly divided as under:

15-49 Years	-	Women (Priority to Pregnant and lactating)
0 - 11 months	-	Infants
12 - 35 months	-	Toddler
36 - 71 months	-	Pre school Children

Organization

Initially, the ICDS scheme was launched in backward rural areas. Priority was given to predominantly tribal area, drought and/ or flood prone area, nutritionally deficient belts, area predominantly inhabited by scheduled castes and areas lacking basic utility services. Later on, it was extended to urban areas also covering the slum localities. With passage of time, country reached to a point when Supreme Court directed the Government of India to Universalize the ICDS throughout the country.

Conventionally, the rural development block has remained a unit of operation in the rural area. It is assumed that such a unit will have a population of around 1,00,000 people. Population is scattered in roughly 100 villages. Since the area happens to be large, it is divided into three to four sectors comprising of 25-30 villages. The State of Rajasthan has already reached a point where a Primary Health Centre exists in every sector.

The village is the ultimate unit to execute the ICDS. An Anganwadi Centre functions over a population of every 1,000 where beneficiaries collect for 3-4 hours every day. They are provided with necessary services. The person managing this place is known as *Anganwadi Worker* (AWW). To supervise and support the work of AWW, there is a lady superior designated as *Mukhya Sevika*. the programme guidelines mention a norm of one supervisor over every 20 AWWs in rural, 25 AWWs in urban and 17 AWWs in tribal area. At the block level, the Manager of the project is designated as Child Development Project Officer (CDPO). In larger blocks, Assistant CDPOs are provided for better functioning of the scheme. In almost all district of Rajasthan, there are offices of Deputy Directors of WCD who coordinates the activities of all ICDS blocks of their respective district. At the state level, the Director of Women and Child Development, who is usually from Indian Administrative Service, oversee

ICDS.

A parallel hierarchy exists in Medical, Health and Family Welfare Department to support the programme. At the basal level, FHW provides the supportive services to all the *Anganwadis* functioning in her sub-centre area. Over every 4-6 FHWs there is a supervisor who is further supported by Medical Officer at sector and block levels. In each district the CMHO plays the role of District Advisor and at the state level the Director (FW) is the State Coordinator. The latter usually delegates this responsibility to one of the Joint Directors who co-ordinates all ICDS related health activities at the state level.

Location	WCD	Medical and Health
Village/Anganwadi	AWW assisted by Helper and <i>Sahyogini</i>	ANM assisted by ASHA
Sector (a HQ placed between 20-25 villages)	<i>Mukhya Sewika</i>	Sector Advisor (M.O., PHC)
CHC (Block HW)	CDPO	Project Advisor (Block MO I/c)
District	Dy. Director	District Advisor (Dy. CMHO) or Chief District Advisor (CMHO)
State	Director WCD	State Coordinator (Jt. Director), (DM & HS (FW))
Government	Principal Secretary - WCD	Principal Health Secretary

Beneficiaries : Since an *Anganwadi* is located over a population of 1,000, it covers approximately 200 women in reproductive age group and 150-170 children in the first six years of life. Numerically, the children are designated as 0-5 years. Based on average rural birth rate of 30 per 1,000 there are 30 infants; 6 percent of the population in next two years of life and 8 percent between fourth and sixth year of life respectively. At any given point of time 25-30 women are pregnant and half of them are expected to be lactating women (within six months of having delivered a baby). It is expected that AWW will intensively cover all children who are malnourished and the women who are pregnant or lactating. Every Medical Officer involved in ICDS must be aware of these norms so that s/he begin with an effective supervision.

Supplementary Nutrition: Provisions are kept to provide 300 calories and 10 gms of protein in the supplementary food. The children who suffer from Gr. III and Gr. IV malnutrition are given double this amount. The pregnant women in last trimester and lactating mothers are given 500 calories and 20 gms of protein every day. The supplementary food is provided by different agencies like CARE and World Food Programme. In some of the projects, the arrangement to procure

food are made by the WCD department directly. The Medical Officers should also keep themselves abreast with any innovations undertaken by the executing department, for example, in some projects 'take home food' is encouraged, while in others, Amylase rich food (ARF) has been tried. CARE in Rajasthan through its RACHNA project has widened the scope of ICDS in selected districts.

Immunization: MCHN days strategy with a focus of operation on *Anganwadi* needs special attention from Medical officers. It is recommended to follow the national immunization schedule. Every child should be given eight recommended doses for six vaccine preventable diseases in the first year. Similarly every expectant mother should be given tetanus prophylaxis through two contacts. Medical Officers, through their better supervision, can improve the quality of these services and motivate the mothers to preserve the immunization cards.

Health Check up : It includes physical and obstetrical examination of every pregnant mother at least three time, one of which must be sometime beyond 36 weeks. Similarly post-natal check up should be regular and complete. Children under six need a regular health check up include, weight recording as part of growth monitoring; watching milestone for growth and development; general check up; deworming if necessary; providing treatment for minor ailments; and providing prophylactics like Vitamin A and fersolates. It would be pertinent to mention here the parameters of physical growth in Indian children:

Age	Height (cms)	Weight (kgs)
At birth	48	2.8
6 months	63	6.0
11 months	71	8.0
23 months	83	10.0
35 months	91	12.0
47 months	98	13.0
59 months	104	15.0
71 months	110	17.0

Based on the weight for age the criteria for malnutrition are as follows:

% of Expected Weight	Grading	Position in Growth Chart (Road to Health)
80-90	Normal	Above the uppermost line
70-79	Gr I	Between line 1 and 2
60-69	Gr II	Between line 2 and 3
50-59	Gr III	Between line 3 and 4
Less than 50	Gr IV	Below line 4

Referral Services : Children and women who are found to be sick should be referred to the appropriate place and person for immediate intervention.

Nutrition and Health Education : This service is directed towards all women. AWWs and ANMs should continuously educate the women on nutritive value of different food items. All educational activities should lay stress on nutritional requirements of pregnant and lactating mothers, proper breast feeding and weaning practices, and early detection of malnutrition and micronutrient deficiencies like Vitamin A, Iodine and Iron-Folic Acid.

Non-formal Pre-school Education : A package of activities including chanting rhymes, identifying toys, using charts for object identification and interaction amongst children have been envisaged to enhance the awareness of the children.

Anganwadi should provide an ample opportunity to the children to play with toys and mix with each other.

Role of Various Functionaries in ICDS Programme

Anganwadi Worker : She is selected from the concerned village/ locality and is expected to provide services on voluntary basis. Soon after being recruited as AWW, she is sent to one of the eight AWW Training Schools in Rajasthan where she gets four months training. She is usually primary or middle pass and may be illiterate in some situation. In a nutshell, the Anganwadi Worker is a multipurpose agent of change; provides a direct link between beneficiaries and the system; assists CDPO in community survey; carries out surveys to update the records of beneficiaries; conducts Anganwadi on day to day basis; organizes non-formal education sessions; involves PHC staff in organizing the delivery of health services; maintains record of all ICDS related activities; and provides health and nutrition education to mothers.

Supervisors (Mukhya Sevika) : Supervisors are usually ladies and sometime males. They are full time paid employees of the government who are educated to intermediate level or above and are given induction training in certain selected institutes. They are responsible to supervise 17-25 AWWs depending on the situation. In brief, a Mukhya Sevika provide supportive supervision to AWWs, provide on the job training to AWWs, assist in record-keeping, assist in community visits and getting liaison established with health personnel, provide link between AWW and CDPO.

Child Development Project Officers (CDPOs): They are either from state or subordinate services and often come from Education or Medical Department on deputation basis. Each CDPO is assigned one particular ICDS block. Functions of a CDPO includes seek the premises for each Anganwadi; supply of various

inputs; co-ordination and control through supervisors; monitors the programme in the block and report it to Deputy Director and other concerned officials. at as administrative head of supervisors; responsible for filling up the vacancies of AWWs and arranging timely payment of their remuneration.

Regional Deputy Directors : They are officers from Rajasthan Administrative Services, usually in the mid-career. They oversee the management of 3-6 ICDS blocks concurrently of the respective district assigned to them. They are the link between the blocks and state.

Director : The ICDS scheme at the apex level in the state is managed by Director of Women and Child Development Department. She/ he is from Indian Administrative Services and executes the decisions of the government in terms of sanctioning new ICDS blocks in the state, filling up the vacancies of CDPO supervisor, establish liaison with central government, coordinates the fund flow and resource allocations. Above all s/he is expected to provide a leadership to generate effective coordination between two departments.

Role of Health Personnel

Female Health Worker : She is responsible for all *Anganwadis* located in a sub-centre area. She provides technical support in terms of immunization services, referral and equipping the medicine kits. She keeps a track of immunization and health days in various *Anganwadis* and reaches there on the respective days for support.

Sectoral Advisor : Medical Officers working at PHC located in a specific sector of a block are designated as Sector Advisor. Their responsibilities in this capacity include arranging monthly meeting during the last week of each month with all AWWs, FHWs, LHVs and MS of the sector at sector headquarters. review the progress and initiate actions for improvement of ICDS in the sector. take a session on relevant subjects continuing education at the monthly meeting. prepare a sectoral report on the prescribed proforma and submit it to the block head quarters within first week of the following month.

Project Advisor : The Medical Officer Incharge of Community Health Centre at block headquarters is designated as Project Advisor. His/her functions include: dividing the ICDS project area into three to five sectors, keeping one of the sectors directly under his charge. prepare monthly monitoring report (MMR) of the ICDS Block on the prescribed proforma with the help of a clerk/ computer on the basis of data received from all Anganwadis of the area through Sector Advisors. present his MMR of the month at the monthly PHC level meeting to the District Advisor and dispatch the same to the central technical cell and state

coordinator preferably within first week of the following month. report the monthly progress of ICDS in the district level meeting. play effective role in organizing joint trainings of various functionaries like AWW, FHW, Dai and volunteers of Women Development Project.

Chief District Advisor : The Chief Medical and Health Officer (CM&HO) is the head of the health services at district level, is designated as Chief District Advisor. He may delegate the co-ordination of ICDS activities at district level to one of the Deputy CMHO. The later would, in turn, be designated as District Advisor. Besides holding regular district level meetings, their responsibilities include: provide continuing education to the subordinate staff. submit monthly monitoring report to the CTC and State Coordinator within 11 days after the end of month. see that supervisory work is being equitably distributed between different Deputy CMHOs and Medical Officers Incharge at block and sector levels. participate in divisional and state level meetings and to establish liaison with women and child development functionaries.

State Coordinator : The Director (FW) happens to be the honorary state coordinator for ICDS. He is expected laise with the state nodal department i.e. WCD, GOR. delegate the responsibility of data analysis and co-ordinating training to one of the Joint Directors. facilitate the appointments of consultants in Medical Colleges and facilitate the implementation of ICDS with maximum possible inputs from health functionaries.

Monitoring of ICDS Programme

Medical Officers should focus their attention on medical monitoring report. They should also persuade their field staff to regularly record the weight of children on 'Road to Health' cards.

Further Readings

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Maternal Health in Rajasthan

Shiv Chandra Mathur and Kusum Mathur

Maternal death is defined as death of a woman during pregnancy or within 42 days of delivery from any cause directly related to or aggravated by the pregnancy (apart from accidental causes). Maternal mortality is measured as a *ratio* of the total number of maternal deaths to the total number of live births. The latest data available for the year 2003 shows that MMR in Rajasthan is 445 per lakhs live births (SRS 2003). The life time risk of dying women due to pregnancy is 1.9 % it is almost ten times higher than that of Kerala, where it is 0.2%. Raising the status of Maternal Health is a priority intervention in the health sector of Rajasthan. In this context it is expected that Doctors working in peripheral facilities are well acquainted with outcome indicators, input facilities and process to be followed in manouvering the maternal health in a right perspective.

It is estimated that 18 lakhs births occur every year in Rajasthan and 8000 pregnant women are dying in the state every year. It implies 700 maternal deaths per month, more than twenty deaths per day and around one death per hour. However, it is observed that the community at large does not appear to be overtly concerned as regards mortality during pregnancy for the simple reason that for a village of an average population of 1000, a maternal death will take place once in 5 years! Eventually the births appear significant and easily noticeable while the maternal deaths go unnoticed and is not a priority for the community. Status of Maternal Deaths in Rajasthan is as follows:

Year	Number of maternal deaths				Estimated number of deliveries	Estimated number of maternal deaths	Reported as a percent of estimated maternal deaths
	During Pregnancy	During Delivery	In postpartum period	Total			
2001-02	366	384	352	1,102	17,56,304	11,767	9.36%
2002-03	262	414	383	1,059	17,99,345	12,056	8.78%
2003-04	284	374	342	1,000	17,98,663	12,051	8.30%
2004-05	226	304	243	773	18,44,092	12,355	6.26%

Trends of Maternal Mortality in the State: MMR has shown significant decline during the period between 1998 -2003. It has decreased from 677 to 445 / lakh live births. Conservative estimates reveal that the MMR would be 296, in the year 2015, if the current trends continue to follow. This implies that state would be far

away from the millennium development goal of 225 per lakh live births. Estimated average time interval from onset to death for major obstetric complications:

Postpartum Hemorrhage	2 Hrs.
Antepartum Hemorrhage	12 Hrs.
Ruptured Uterus	1 day
Eclampsia	2 days
Obstructed Labour	3 days
Infection (sepsis)	6 days

It has been observed that most of the maternal deaths primarily occur because of delays at three levels:

First delay (Delay in seeking medical care): Due to the lack anticipation & awareness of the complication during pregnancy, during delivery or thereafter, the members of family and of the community delay in taking decision of taking a pregnant mother to the health facility.

Second delay (Delay in reaching a treatment facility): After having taken a decision to transport the pregnant mother to the health facility, there is considerable delay in arranging transport and / or in deciding where to take the pregnant mother.

Third delay (Delay in receiving adequate treatment at the facility): After having reached the health facility there is a considerable delay in providing care to the pregnant woman, because of lack of trained staff, equipment or drugs etc.

First and foremost is the need for referral facilities that provide 24-h x 7-day-a-week care within a reasonable distance of where people live. It is now proven that most of the complications can not be predicted even by an expert professional, but most of the maternal deaths can be averted if the pregnant mother receives the required care 'in time' failing which the probability of maternal mortality is very high.

For every 100 women who become pregnant

- ▶ 40 will experience some complication during pregnancy, childbirth or the postpartum period
 - ▶ 15 will develop life - threatening complications, mostly around the time of birth
 - ▶ 5 will require surgical intervention, usually a caesarean section
- If the caesarean section rate is below 5%. This indicates that many women are being denied access to life - saving surgery.

Source : UNICEF 2000 (11)

Intervention to reduce Maternal Deaths

Child Survival and Safe Motherhood (CSSM) as a project was launched in the State in 1992. One of its aim was to reduce MMR to less than 200 per lakh live births by 2000. Identification of *high risk* pregnancies through antenatal care was followed.

Concept of strengthening of *First Referral Units (FRUs)* also emerged during the programme. In Rajasthan 137 FRUs were supported with equipment kits (Kit E to P). Kit M containing equipment for anesthesia was supplied to each FRU of the State under CSSM Programme about ten years ago, but even today most FRUs do not have a qualified anesthetist. Posts of Gynecologists and Pediatrician were sanctioned at these FRUs. Facilities for caesarian section, blood transfusion and new born care were the critical determinant for labeling an institution as FRU.

Subsequently Reproductive and Child health (RCH) as a project was launched in the year 1997. While the training of traditional birth attendant (TBA) and strengthening of FRU continued, the provision of referral transport was added in RCH I. However the programme could not achieve its goals primarily due to centralized planning and secondarily due to erratic supply of equipments; lack of availability of the specialists; unavailability of blood storage facilities; and poor understanding of programme Managers at various levels.

Comprehensive strategy to address all the delays from household level to the institution level has been developed under NRHM and RCH II. Following interventions have been initiated in the State:-

- ▶ *Accredited Social Health Activist (ASHA)* has been identified who would be trained in generating awareness regarding complications of pregnancy and safe delivery.
- ▶ *IEC plan* using all the channels of communication has been developed, to address the issues related to pregnancy, delivery and its complications. Electronic media, print ,media, folk groups and peers education shall be used in propagating the maternal care.
- ▶ *Janani Suraksha Yojana* is launched in the State to promote Institutional deliveries in the State. The package would be in the form of cash incentive of Rs. 1400/- for rural women and Rs.1000/- for urban women delivering in the public facilities or in any *accredited private institution*. This money takes care of transportation required.
- ▶ *Helpline* initially piloted in one block of Dholpur is now being replicated

throughout Rajasthan. Identified NGO does mapping of all the taxis in the area and the cost from remotest area of the block to the identified facility is worked out. One person is available at the CHC, who is provided with a telephone connection. In times of emergency anybody can give a call to the helpline number, and arrange a vehicle to the caller's house. Simultaneously he will inform the health care institution.

- ▶ *Mobility support to the PHC /CHC:* A provision of 7 days mobility has been provided to the Medical Officer in charge of the PHC. Essentially it is to effect RCHN days and enhance the maternal and child care closest to the houses of villagers. In emergencies this can be used for transportation of pregnant ladies from PHC to higher centers.
- ▶ *Skilled Birth attendant:* (SBA) ANMs will be trained in assisting safe delivery and early diagnosis of complication and their primary treatment. GoR has established a “Midwifery Resource Centre” at Zanana Hospital, Jaipur to scale up (SBA) training in the state for ANM and LHV's.
- ▶ *Model Subcentres:* 200 sub-centres have been strengthened as Model Subcentres. They are expected to provide the services of the safe delivery. They are being upgraded through construction of labour rooms. These sub-centres will be provided with the basic equipments for conducting safe delivery. “Hands On” training of ANMs of these sub-centres will further enhance the potential of model subcentres. 800 more sub-centres will be strengthened to provide the services of the essential obstetric care services. Government of India has agreed to label the deliveries conducted at these sub-centres as institutional deliveries and same package will be paid to the ASHA and to the beneficiary who will get her deliver conducted at these sub-centres.
- ▶ *Strengthening of Emergency Obstetric Care Services:* Under the umbrella of NRHM, 365 institutions have been identified to provide 'Basic' and 'Comprehensive' Emergency Obstetric Care Services round the clock through out the year. It has been ensured that at least one institution will be made operational in every block to provide 24 hour obstetric care services.

Basic Emergency Obstetric Care center is one which provides

- i. Parenteral administration of Antibiotic
- ii. Parenteral administration of Oxytocics
- iii. Parenteral administration of Anticonvulsants
- iv. Assisted vaginal delivery
- v. Manual removal retained placenta

vi. Removal retained products of conception

Comprehensive Emergency Obstetric Care center is one in which, addition to above mentioned facilities will also provide the following facilities

vii. Delivery by Caesarian Section

viii Availability and facility of blood transfusion

Efforts have been initiated to make Comprehensive Emergency Obstetric Care in the State: operational on a 24 x 7 basis by undertaking:

- ▶ Detailed manpower planning; hiring of additional specialists and paramedical staff; incentives to the Doctors and paramedical staff posted in the remote areas; and housing facilities for the staff posted at these facilities.
- ▶ Need assessment for the civil works, equipments, drugs and supply.
- ▶ Capacity building of doctors and paramedical staff in Emergency Obstetric Cares Centers. The trainings are being provided to the Doctors/ paramedical staff include (i) "Hands On" residential training at the district level; (ii) training of MBBS doctors in life saving anesthetic skills; and (iii) training of MBBS doctors in delivery by caesarian section.
- ▶ *Establishing Blood Storage Centres*: To ensure the availability of blood for every pregnant mother 146 Blood Storage Centres will be developed in the State. The State has already initiated the process of establishing blood storage centers.
- ▶ *Maternal Death Audit*: The maternal deaths are underreported because of various reasons. It is planned that facility based maternal death audit will be initiated at the selected facilities in the State.

Further Reading

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Support from Unicef to Health Sector

Satish Kumar

This article has been purposely placed to apprise the readers with Unicef's contribution for improving public health status in Rajasthan with focus on children and women.

Editor

Introduction

Rajasthan is the largest state of India spanning 3.42 lakh sq. kms and having a population of 5.6 crore. The state is divided into 32 districts, and 237 development blocks. More than 60 percent of the State's total area is desert, with sparsely distributed population, entailing a very high unit cost of providing healthcare services. Rajasthan has about 1% of the water resources of the country though the State accounts for 10.4% of country's area and 10.6% of the area under cultivation. Rajasthan has a high birth rate and infant mortality rate. Although there has been a perceptible decline recently in the birth rate and IMR, as shown in the table below, it remains a challenge to bring them down to acceptable levels as these are still higher than the All India averages of 23.8 and 58 respectively.

Table 1: CBRs and IMRs of India and Rajasthan

Year	CBR (India)	CBR(Rajasthan)	IMR (India)	IMR (Rajasthan)
1996	27.5	32.4	72	85
2000	25.8	31.4	68	79
2005	23.8	28.6	58	68

The state has a high proportion of scheduled caste (SC) population (over 17 percent) and a high proportion of Scheduled Tribe (ST) population (12.4 percent). Although Rajasthan is categorised amongst the poorer states of India, its economic performance has been the best among the poorer states. Rajasthan's per capita NSDP was lower than UP and Orissa in the early 1980s, now it is 50% higher than UP and 62 % more than Orissa, despite the repeated droughts.

Though the budgetary allocation for health has increased from Rs.54.77 per capita in 1990-91 to Rs.172.68 per capita in 1999-2000 (Human Development Report-Rajasthan by Society for International Development 1999) ensuring good public health and hygiene care in the state is still a tremendous challenge provided the difficult terrain, inadequate availability of clean drinking

water and poor economic status of the community at large. The existing challenge to the state is evident by the high and slowly reducing IMR and MMR.

UNICEF has been working in the state for more than two decades now. It has been an active partner in all the key public health programs and strategies implemented in the state and continues to be so. At the state level, UNICEF has been supporting the Government of Rajasthan (GoR) in implementation of the following key public health programs and strategies:

- ▶ Strengthening Immunization
- ▶ Monitoring and evaluation of health interventions
- ▶ Promoting Infant and Young Child Feeding Practices & Baby Friendly Hospitals
- ▶ Promoting neonatal care, reducing infant mortality
- ▶ Epidemic Control Measures
- ▶ Ensuring safe motherhood
- ▶ Reducing child malnutrition, through Malnutrition Treatment Centres (MTCs), Nutrition-surveillance and growth monitoring and promotion
- ▶ Anaemia prophylaxis for adolescent girls
- ▶ Vit.A prophylaxis for Under-5 children
- ▶ Guinea-worm eradication
- ▶ Promoting Universal Salt Iodization

UNICEF's contribution has been at various levels of health system in the state towards improving the state of public health in Rajasthan, especially focusing on women and children. From providing policy inputs to the leaders of healthcare in the state to directly implementing pioneering projects on public health, UNICEF has been a key partner with the state government. The joint efforts of UNICEF and Government of Rajasthan have led to noticeable improvement in the health status of the community in the state.

UNICEF's inputs in Maternal and Child Health arena

UNICEF has been actively supporting the National Rural Health Mission and the Reproductive and Child Health (RCH) programme in its aim to reduce maternal, neonatal and child mortality by improving healthcare services for communities.

Child Health:

The Infant Mortality Rate in the state had been declining very gradually from 86 in 1996 to 75 in 2003. This decline was accentuated in last few years, subsequent to intensive child health strategies initiated by UNICEF and Government of Rajasthan in the state. IMR now stands at 67 per 1000 live births,

a decline of nearly 8 points in last 2 years. This stands as evidence to the fact that the child health strategies being implemented in the state have yielded significantly positive results. Majority of deaths in infancy are a result of multiple factors ranging from non-availability of quality reproductive and child health services, adverse socio-economic development index to various obstetric complications and emergencies. Low birth weight, acute respiratory infection, infantile diarrhoea and cord infection continue to account for almost 90 per cent of infant deaths.

Through the Border District Cluster Strategy (BDCS), UNICEF initiated key maternal and child health interventions in 3 under-developed inter-state border districts of Dholpur, Baran and Jhalawar. BDCS aimed to increase the immunization coverage in the state using innovative strategies. This was followed by UNICEF's insistence for and support to developing the concept of outreach through the MCHN-days (Maternal and Child Health and Nutrition). The strategy focuses on reaching un-reached and under-reached children and pregnant women and providing them essential services. These strategies have significantly improved the availability and access of essential MCHN services at the village level.

UNICEF has been actively advocating regarding strategies for improving routine immunization (RI) among decision-makers, donors, partners and government functionaries. UNICEF also supported planning for improving RI in the state through building technical and management capacities of the state and district health officials and field level functionaries. The immunization coverage has improved by around 65% in the last 5 years, as evidenced by NFHS and Mode CES data. The quality of vaccination has also improved tremendously. UNICEF also supported strengthening cold chain in the state by Providing ILRs, Deep Freezers, WICs, WIFs, Cold-boxes, vaccine carriers and by supporting maintenance and upkeep of cold-chain. One of the other key activities that UNICEF supported GoR in has been the monitoring and supervision of Immunization activities. Active monitoring and effective feedback has resulted in a more response system.

UNICEF was instrumental in implementing the massive NNT (Neonatal tetanus) immunization campaign in 1998-99, which led to significant reduction in incidence of NNT in the state, with many of the districts reporting near elimination of NNT. The overall decline in the NNT cases was around 50%.

Pulse-Polio Immunization: UNICEF has also been partnering with the Government and WHO-NPSP in attempting to eradicate polio and tetanus in

newborns and to ensure more effective measles control in Rajasthan. UNICEF supported the PPI activities by bolstering the cold-chain, supporting field activities, supporting monitoring and supervision of PPI campaigns, Filling the gaps in supplies and logistics and providing assistance for intensive IEC campaigns. Rajasthan has stayed polio-free since 2003 despite incidence of polio cases in the states bordering Rajasthan.

A crucial component within UNICEF's child health interventions is the Integrated Management of Neonatal and Childhood Illnesses (IMNCI), an innovative approach to tackle early newborn and child health through home-based visits, basic medical care and early and effective referral. UNICEF initiated implementation of IMNCI in 2 districts of Tonk and Jhalawar. The IMNCI strategy has shown noticeable improvement in home visits, early identification of childhood illnesses and increase in rates of referral for children. The strategy is now being upscaled in 9 districts of the state through NRHM with the support of UNICEF. IMNCI promises to be one of the key strategies towards reducing infant mortality in the state.

Malnutrition is another important factor contributing to child mortality and morbidity in the state. Improving the nutritional state of children continues to remain a challenge in Rajasthan. It still is a major risk to the development potential and learning capacity of children. Anaemia among adolescent girls and women results in an increased risk of premature births and low birth weight with 22.7% of children born with weight less than 2.5 kgs. (2000). Vitamin A deficiency continues to be a major public health problem. Successive droughts over the years have further compounded the problem of malnutrition. UNICEF has been supporting state level interventions in Child Development and Nutrition in Rajasthan. This support continues and includes capacity building of ICDS and health functionaries, implementation support to expand coverage under Anchal Se Aangan Tak (ASAT), improving the nutritional status and overall development of children through promoting early child care practices at the family level. Through the UNICEF supported "Malnutrition Treatment Corners", the management of severely malnourished children has improved tremendously, significantly impacting the mortality due to malnutrition.

UNICEF has also assisted the government in following up on strategies to improve Vitamin 'A' coverage, IFA supplementation for adolescent girls and programming for elimination of Iodine Deficiency Disorders. UNICEF was in fact the first agency in Rajasthan to have propagated for an intensive Vit.A coverage in drought affected districts. This strategy was proven technically

sound and accepted by the state as the means to reduce childhood morbidity and mortality in Rajasthan. Bi-annual state-wide campaigns for Vit A supplementation are being held as a continuum of the strategy initiated. These campaigns have benefited more than 40 lakh children.

Maternal and New-born care: A second area of focus for UNICEF has been maternal and newborn care. While a large proportion (73.8 per cent) of deliveries are conducted at home, only 37.7 per cent deliveries are conducted by a health professional. In rural areas, only 29.7 per cent of deliveries are attended by trained professionals, resulting in poor care of the newborns. The maternal mortality rate for Rajasthan was estimated at 670 in 2001. Early pregnancies, frequent deliveries and poor quality of maternal healthcare are important causes of high MMR in the state. Recent improvements in maternal healthcare in the state have shown noticeable impact on maternal mortality, which was reported as 545 (2006 SRS data) in the recent most survey. But even this level of maternal mortality is high and signifies the need for a comprehensive improvement in maternal healthcare services.

UNICEF, recognizing the need for capacity building of the health functionaries in the state in managing deliveries and neonates, supported the state in developing a “Mid-wifery Resource Centre” aimed at being the repository of all information pertaining to mid-wifery and also facilitating training of health functionaries in skilled attendance. Through these trainings, while skills of the health workers are being developed, capacity of the health system is being honed. UNICEF has supported GoR in strengthening emergency obstetric care by upgrading FRUs and setting up blood storage centres for promoting availability of safe blood. The WRLH project of UNICEF led to significant improvement in healthcare infrastructure in the 3 border districts. Recently, UNICEF piloted the “JSY helplines” towards reducing the delays of pregnancy and making the health system more accountable. This idea has been lapped up by the state government and GoI and is now being scaled up through NRHM. The project demonstrated the tremendous impact of technology in reducing maternal mortality.

Reducing incidence of other communicable diseases

India Guinea worm program was globally conceived in 1979. It was initiated in India in 1980 when India endorsed the recommendation of a task force on Eradication of Guinea worm Disease in India. UNICEF launched strong advocacy efforts towards initiating programs for eradication of the disease from India. UNICEF and WHO maintained a joint technical team to provide technical

support to national program coordinators in the region and to external support agencies. UNICEF also provided evidence based inputs towards supporting availability of water through hand-pumps, obviating the need for step-wells and thereby markedly reducing transmission of the disease. UNICEF also supported data collection and mapping of incidence of dracunculiasis, thereby enabling focusing of disease control efforts.

Rajasthan was one of the seven most extensively affected states where 15,210 cases residing in 6,776 villages in 1984 (70% of the all cases in India) were infected. Though the state was showing the decline but to accelerate the efforts and to address the highly endemic area i.e. western Rajasthan SWACH (Sanitation, Water Guinea worm eradication and community Health) project was launched in 1986. UNICEF, WHO and Govt. of Rajasthan collaboration efforts resulted in eradication of guinea worm. UNICEF supported in providing safe water by installing the hand-pumps in the remote areas, technical support for treating the cases and various activities of the SWACH project for especially involving community at large. UNICEF demonstrated that it is possible, at affordable price, to control and even eliminate a disease, even in the remotest and most neglected areas in spite of the fact that the key interventions involve substantial and sustained changes in behavior. It also demonstrated that another fundamental ingredient of success in any public health endeavor of this kind is political support, without which it will be starved of the resources that it requires. Thus the efforts of UNICEF in sustaining the advocacy for controlling the disease were vital and noteworthy. It also demonstrated the significance of Sector-Wide Approach of UNICEF towards addressing vital public health problems.

Rajasthan Integrated Fluorosis Mitigation Programme

Excessive fluoride in groundwater causes fluorosis which is a slow, progressive, crippling disease affecting every organ, tissue and cells in the body and results in health complaints having overlapping manifestations with several other diseases. The Rajasthan Integrated Mitigation Fluorosis Programme (RIFMP) has been launched by PHED, Government of Rajasthan in partnership with UNICEF and NGOs to address the problem of fluoride in groundwater in Rajasthan. The programme is planned in three phases:

- ▶ Phase I (2004-2006) in which 2643 habitations were included where fluoride level > 5mg /lt
- ▶ Phase II (2006 2007) in which 5056 habitations are included with fluoride level 1.5- 3.0 mg/lt

- Phase III (2007- 2010) in which 11388 habitations are to be included with Fluoride level 1.5 3.0 mg/lit

The programme provides for promotion of domestic defluoridation units, handpump -attached defluoridation units and their operation and maintenance and for construction of rainwater harvesting structures. The most recent review indicates that 12,600 families have been provided with DDUs. Rapid appraisal by UNICEF and PHED teams indicate that approximately 84 % of the DDUs are functioning well after 18 months of installation. In other words close to 70,000 persons who were earlier at risk are getting fluoride-free water; this includes 14,000 children in the 0-6 yrs age group.

HIV/AIDS

UNICEF has also been supporting the state in reducing the incidence of HIV/AIDS in the state by providing assistance in implementing various prevention, treatment, care and support interventions for the state. This includes the state-wide Adolescents Education Program aimed at preventing spread of HIV/AIDS in adolescents and PPTCT services for pregnant and lactating mothers and their children. The UNICEF supported model PPTCT cum VCTC center opened at sub-district level hospital in Tonk was the first of its kind in Rajasthan.

Emergency Preparedness in Rajasthan:

UNICEF has been continually supporting the drought mitigation efforts in several districts of Rajasthan, making intensive efforts to support availability of clean drinking water, preventing malnutrition amongst children and pregnant women. UNICEF has collaborated with GoR to set up Disaster Management Centre in the Rajasthan Institute of Public Administration to build the capacity of government officials at the state and district levels for effective planning for disaster preparedness and documenting best practices to deal with drought situation in Rajasthan. It also aims at reducing the vulnerability of the community by building their capacities in coping mechanisms for drought.

UNICEF was one of the first partners to have responded to the flash floods that affected Barmer district in August, 2006. Its efforts towards initiating intensive immunization drives, provision of insecticide treated bed-nets etc pre-empted any major disease outbreaks. The emergency relief operations carried out by UNICEF were appreciated and owned up by the state and district authorities.

Cross-cutting strategies:

UNICEF has always been actively involved with supporting essential cross cutting strategies such as monitoring and surveillance for health services. UNICEF supported strengthening of the monitoring and evaluation system for immunization through an external monitoring cell. This cell acts as a resource centre for information regarding MCHN sessions' quality and coverage. Traditionally, UNICEF has also supported the GoR in designing and implementing the Multi Indicator Cluster Survey (MICS) in Rajasthan.

By providing an interface between the Health and ICDS departments through its efforts with MCHN strategy, IMNCI and malnutrition management interventions, UNICEF has been instrumental in increasing convergence between government sectors in Rajasthan.

UNFPA in Rajasthan Programmes and Priorities

Hemant Dwivedi and Sunil Thomas Jacob

United Nations Population Fund (UNFPA) is an international development agency. As a part of UN system, it strives to promote the right of every woman, man and child to enjoy life full of health and equal opportunity. UNFPA supports countries in using population data for policies and programmes to reduce poverty and to ensure that every pregnancy is wanted, every birth is safe, every young person is free of HIV/AIDS, and every girl and woman is treated with dignity and respect. It is on this mission that UNFPA since 1979 is supporting programmes in the area of population and development in Rajasthan. The support is primarily given to the Government of Rajasthan under various Country Programmes. Currently (2003 -2007), the 6th Country Programme cycle is being implemented. The programme has covered a wide spectrum of interventions in the area of health and family welfare. On the basis of the conference held in Cairo in 1994, the UNFPA's presence in the state of Rajasthan can be divided into pre-ICPD era and post- ICPD period .

In the pre-ICPD period (1979-1994), the UNFPA supported the Area Development Project (ADP) to the identified districts. The ADP I and II focused on the infrastructure improvement, enhancing the training capacity, strengthening service network and implementation of communication and innovative activities in the identified districts. The ADP- I focused on 4 districts whereas the ADP-II focused on 20 districts in the south and east Rajasthan. Support was provided to build Community Health Centres, Primary Health Centres and Sub centres to cope up the gaps in infrastructure. Between 1979 and 1994, the project also provided support to establish the Information, Education and Communication (IEC) Bureau to develop needs based communication for the health and family welfare activities. Capacity development of health professionals was supported in ADP by funding the establishment of the Health Management Training and Research Wing in the HCMRIPA. So called UNFPA wing in OTS, subsequently proved its worth by proving as a precursor to the State Institute of Health and Family Welfare (established in Jaipur in 1995). Need for enhancing training capacities of the public health system was further

supported by up-gradation of 9 District Training centres and 2 Health and Family Planning and Training centres (their erstwhile designations were ANMTC and RFPTC respectively). An innovative community based distribution of contraceptives known as *Jan Mangal* was initiated with UNFPA support and later on upscaled to all districts by State funds.

From 1994 to 1999, UNFPA support was provided to implement decentralized district based programmes. As a part of this, the first District Reproductive Health Project in Bundi was formulated and implemented. Following the ICPD conference in 1994, reproductive health, population and development issues were addressed through Integrated Population and Development (IPD) projects. These projects were initiated in 1999. The major objective of the IPD Project was to improve the provision of reproductive health services with focus on quality and accessibility.

The IPD project in Rajasthan covered seven districts in Phase I and eight districts in Phase II. The districts Alwar, Bharatpur, Sawai Madhopur, Karauli, Bhilwara, Chittorgarh, and Udaipur were covered in IPD Phase I and Rajasamund was added in Phase II. These districts were identified on the basis of selected performance parameters related to FW program and Gender. The IPD Phase-I included the provision of a package of reproductive health services and initiatives to give women access to information and role in programme management. IPD Phase I (1999-2003), focused on three major sub programmes viz Reproductive Health(RH), Women and Community Empowerment and Advocacy. Building on the work initiated under the IPD phase I, the IPD Phase II (2003- 2007) was initiated. Second phase of IPD carried on these activities in the same districts with a sharper focus on results and stronger mechanisms for creating community demand for quality health services. In IPD Phase II, the major interventions under the RH included increasing the access of the contraceptives through *Jan Mangal* volunteers , increasing the utilisation of Cu-T through training of the ANM's, promoting male participation in FP through NSV , provision of Emergency Obstetric Care through identified institutions and provision of RTI/STD services . Under the Women and Community Empowerment, the emphasis was on raising the demand of the RH services through Women Collectives, Gender Sensitisation of the health service providers, operationalisation of Family Counselling Centres and establishment of the Women's Resource Centre to spearhead the gender related activities in the State. The Adolescent Reproductive and Sexual Health(ARSH) interventions included the imparting of Life Skills education(LSE) for out of school and in

school adolescents. One major intervention undertaken during the IPD was incorporation of the LSE in the 11th class as a compulsory subject through Board of Secondary Education, Rajasthan (BSER).

Highlights of UNFPA supported Programme

Jan Mangal Volunteer Programme: The main objective of the *Jan Mangal Couple* is to improve the access and utilisation of temporary (non clinical) contraceptive methods. *Jan Mangal Couple* supply conventional contraceptives such as oral pills and condoms, counsel on contraception and provide information on needs and benefits of spacing methods. The strategy of the programme is to promote usage of spacing methods by making contraceptives available through community volunteers in villages with more than 500 population. A bimonthly meeting to ensure adequate support for and supervision of Jan Mangal volunteers (JMV) is regularly organised at the PHC level. The meeting helped in the assessment of the volunteer performance, providing inputs for improving performance, addressing the issues /queries of JMCs and also providing supplies of contraceptives. At the State level, Jan Mangal programme cell was constituted to review the JMC programme and to co-ordinate with the district authorities to obtain status reports and information. The programme evaluation study has showed that the usage of spacing methods has improved and there is a need for more training and counselling skills for the JMC volunteers.

AMDD programme: Averting Maternal Death and Disability (AMDD) project was initiated by UNFPA along with Columbia University with the support from Bill and Melinda Gates Foundation. The Government of Rajasthan implemented this project as part of the UNFPA programme between 2001 and 2004 in seven districts of the state. The project aimed to increase the availability, use and quality of Emergency Obstetric Care (EmOC) services at identified health institutions in these selected seven districts. The project interventions included infrastructure improvement, capacity building of human resources particularly, skill enhancement for EmOC services, community mobilization and improved management of EmOC services

The project interventions could be classified into three categories, the first relates to *policy initiatives*, the second on *service improvement* and the third associated with *community empowerment*. *Policy initiatives* have resulted in the State Government's decision to improve blood availability by establishing sub-district level blood storage centres and in initiating short-term training for

doctors in anaesthesia. Service improvement involved the provision of EmOC services through 31 CEmOC and 52 BEmOC institutions. This was done through the training of the health service providers in the area of EmOC, infrastructure improvement and procurement of medicines and drugs. Under the Community empowerment, the demand for the services was improved through the sensitisation of the PRI members. The project also addressed in developing a reporting system based on the UN process indicators. MIS registers and reports were introduced, after thorough pre-testing and all the EmOC institutions initiated reporting on the new system. The project interventions have resulted in increase in births in EmOC facilities, from 41,944 in 2000 to 54,821 in 2004. It is heartening to note 77% increase in met need for EmOC, which has increased from 8.80% in 2000 to 15.62% in 2004, though there is a long way to go to attain the desired levels. The learning of this project became basis for developing strategy to address maternal mortality under National RCH-II programme.

Life Skills Education: UNFPA during the IPD Phase I and II has worked in the area of curriculum development from the perspective of health, RH, Gender and LSE with the SIERT and BSER. The partnership with the SIERT under the IPD project in 1999 helped integrate gender, RH and reproductive rights and other health related issues in school curricula in an incremental and graded manner. From 2003 to 2005, UNFPA provided technical assistance to Board of Secondary Education (BSER) to incorporate Life Skills Education as a separate subject in the 11th Class. LSE was introduced as an effective tool to empower young people to take control of their lives, body and behaviour. LSE also equips adolescents for facing challenges of changing social circumstances and to deal with issues of sexuality, reproductive health, gender relations, violence and exploitation by making education more enjoyable, relevant and useful. The process of interventions included the development of text book and resource materials, establishment of LSE Cell in the *Shiksha Sankul* and training of teachers to impart life skills education. By the end of 2006, about 70% of the Government Secondary School teachers have been trained.

Out of School Adolescents Programme: Various socio- demographic indicators related to the adolescent girls indicates that attention needs to be given for their overall improvement. Adolescents in Rajasthan constitute 22.5 % of the population and the statistics shows that 25% of the adolescent girls get married at the age of 15 and 61% get married before the age of 18. In the education sector, the drop out rate of the girls from the formal education system is as high as 67%. Considering these facts, the project on LSE for the out of school adolescent girls

was implemented. This was an effort to improve the information on the growing up process, develop decision making capacity and improve information in the area of sexual and reproductive health of the adolescents through joyful and interactive learning process. Eventually it helped them in leading a informed, safer and rewarding growing up process. The programme covered a total of 10000 out of school adolescent girls in 8 districts through 400 animators in 400 villages. The intervention included the development of local specific materials through State Resource Centre and development of state and district resource team to build the capacities of the peer educators and monitoring the programme. The programme at the village level was implemented through peer educators /animators whose main responsibility was to mobilise the adolescent girls in the villages and take regular sessions (40 sessions through out the year one hour per week) and organize events for the adolescents for bringing out their potentials and capacities. The sessions primarily comprises of dealing with one's own self, improving one's social and negotiation skills, knowledge regarding safe motherhood and basic information regarding healthy behaviours especially the reproductive and sexual health.

CHARCA Project: CHARCA (Co-ordinated HIV/AIDS and STD Response through Capacity Building and Awareness) is a joint UN project involving UNFPA, UNDP, UNAIDS, UNIFEM, ILO, UNICEF, UNODC, WHO, UNESCO and aims to reduce the vulnerabilities of young women to HIV/AIDS through a district wide, multi-stakeholder, general population intervention. The vulnerability of young women to HIV/AIDS in the tribal dominated Udaipur district in Rajasthan is mainly due to low literacy, migration, less control over decision making, alcoholism, cultural practices, and RTI/STDs. Gender differentials related to awareness regarding HIV/AIDS among women (19.83%) and men (43.5%), prevalence of RTI/STI among women (46.4%) and men (17%) increases the vulnerability of young women. The major strategic interventions of the project are: 1) Creating an enabling environment which involves the sensitization of district officials, PRI (*Panchayat Raj* Institutions) members, and various stakeholders at block and district level; 2) Awareness building activities related to HIV/AIDS through folk media, wall paintings/writing and interpersonal communication through peer educators; 3) Improving services especially the RTI/STD services and Voluntary Counselling and Testing services; 4) Capacity building and skill development for the health service providers, NGO representatives, Women and Child Department officials and adolescents 5) Building support structures through the Village Information centres and People Living with HIV/AIDS network. The project is being

implemented from 2004 onwards and was to end in 2005. The Expected outcome of the CHARCA project is to increase the awareness of the community on transmission and prevention of RTI/STD, HIV/AIDS and Care and Support.

UNFPA and National Rural Health Mission

NRHM was launched in 2005 with a goal to reduce IMR and MMR. In the year 2005, UNFPA decided to pool in the funds under the second phase of IPD at the GoI level along with the other major partners of the RCH-II, viz DFID and the World Bank. The decision to support the RCH-II programme was strategic in the sense that the resources were leveraged to mainstream issues integral to UNFPA's mandate in the larger programme.

Technical Support to NRHM interventions: Consequent to the pooling in of the resources under the RCH-2 programme of NRHM, the focus of the UNFPA support shifted from the implementation to policy and technical assistance to the State Government, contribute to their planning and up scaling of innovations. UNFPA provides regular support in developing the RCH-II/NRHM PIP for each year. At the State level, the UNFPA provides technical support to various interventions ranging from the Programme Management, Population Stabilisation, Maternal Health, Adolescent Reproductive and Sexual Health, Gender and Gender Based Violence. Programme Management being an important component in the project implementation, UNFPA provided support in the capacity building of the State and District Programme Management Units in the management and thematic issues related to the interventions. In Maternal Health, UNFPA provides technical support in the operationalisation of the EmOC services through developing master trainers for BEmOC and facilitating the Anaesthesia training. UNFPA is coordinating with SIHFW to enhance the capacity of health system in operationalising the ARSH services in selected districts.

Sex Selection interventions: All over India, the decline in child sex ratio is so alarming that while in 1991 there was not a single district with a ratio less than 800, but in 2001, 14 districts have registered a child sex ratio less than 800. While sex ratio below 850 was unheard of till 1991, 32 districts reported the same in subsequent Census. 71 districts in the country registered a child sex ratio of 850 to 899. Of these, 10 districts belong to Rajasthan, namely: Ganga Nagar (850), Dhaulpur (860), Jhunjunu (863), Jaisalmer (869), Hanuman Garh (872), Karauli (873), Bharatpur (879), Sikar (885), Alwar (887) and Jaipur (899). Declining sex ratio is also a growing concern in most of the districts in Rajasthan. Only three

districts have ratio greater than 950. The State average is 909. Rural child sex ratio declined from 919 in 1991 to 914 in 2001 while in urban areas the ratio declined from 909 in 1991 to 886.

The loss of female children due to sex selective abortion and female infanticide has already created an unbalanced sex structure of the population in the country and will have serious demographic and social consequences in years to come. Moreover, these practices reflect the social discrimination against females and are in serious violation of the fundamental and human rights of women and children. Such rapidly declining sex ratio is likely to create severe gender imbalance that can destroy the social and human fabric, as we know it. Declining sex ratio is inextricably interlinked with the gender inequality that exists in our society that further motivates people to go for sex selective abortion. It is also a political issue, biased government policies, unethical medical professionals, irresponsible use of new technologies coupled with a hostile socio-cultural environment has together led to the decline in child sex ratio.

UNFPA at the National level and the State level has taken up the issue of sex selection diligently and formulated programmatic interventions and advocacy programmes to address this problem. At the country level, advocacy campaigns have been supported. At the state level, UNFPA has provided technical support in the establishment of PCPNDT cell. Support is also being provided to implement the interventions in the area of sex selection and adverse sex ratio through community based initiatives. In concurrence with the state government, special project on addressing adverse sex ratio is being implemented in two districts, Karauli and Jaipur with the involvement of Rajasthan Voluntary Health Association.

Summary

True to the mission statement, UNFPA promotes the right of every woman, man and child to enjoy a life full of health and equal opportunity. UNFPA is working in the state of Rajasthan for three decades to provide better quality of life. In the 8th Country Programme cycle (2008-2012), UNFPA is adhering to the United Development Action Framework (UNDAF) and aiming to work more strategically in the area of Population Stabilisation, Maternal Health, Gender and HIV/AIDS to achieve the Millennium Development Goals.

HIV/AIDS in Rajasthan

Nupur Prasad and B.L.Choudhary

Medical Officers working in peripheral health institutions of the state should be aware of the challenges to contain spread of AIDS. They must also know the technical definition of this ailment, role of counseling and organizational set up existing for the control of AIDS.

AIDS is an immunological disorder. It is caused by retrovirus known as HIV. It affects cell mediated immune response which is manifested either as opportunistic infection or cancers. AIDS stands for

- ▶ 'Acquired' means transmitted from one infected person to another.
- ▶ 'Immune' is the body's system of defense.
- ▶ 'Deficiency' means not functioning to the appropriate degree.
- ▶ 'Syndrome' means a group of signs and symptoms.

Genesis of HIV:

After entering a person's body, HIV infect cells and replicate within them (essentially **CD4 T cells** and macrophages). The virus induces the body's immune system to produce antibodies specific to HIV. The period between the acquisition of infection and production of detectable HIV antibodies is called the '**window period**'. It can last for 2-12 weeks. During this period, the person is highly infectious but may not test positive on common HIV antibody tests. Up to 30%-50% of people have a recognizable acute illness at the time of infection characterized by fever, lymphadenopathy (enlargement of the lymph nodes), night sweats, skin rash, headache and cough.

HIV-infected people may remain asymptomatic for as long as 10 or more years. An HIV-infected person may take from 6 months to 10 years to develop AIDS; on an average, 50% of those infected take 8 years to progress to AIDS. People in this phase potentially play an important role in the transmission of HIV as they remain infectious but can be identified only by screening their serum for HIV antibodies. After a period of time, varying from one individual to another, viral replication resumes and is accompanied by the destruction of CD4 lymphocytes and other immune cells, resulting in a progressive immunodeficiency syndrome. The progression depends on the type of infection and different factors that may cause faster progression, such as age less than five

years or over 40 years, other infections (opportunistic infections) and possibly heredity (genetic) factors. Various infections, diseases and malignancies occur among HIV-infected individuals. These are correlated with the degree of immune suppression and include tuberculosis (TB), oral hairy cell leukoplakia, oral candidiasis, papular pruritic eruption, *Pneumocystis carinii* pneumonia, cryptococcal meningitis, cytomegalovirus (CMV) retinitis and *Mycobacterium avium* infection, Kaposi sarcoma, etc.

Indian Scenario:

India has a high burden of HIV/AIDS infected people. Globally one in eight people living with HIV resides in India. NACO estimated total number of infected people in India in 2006 between 57 to 60 lakhs. The epidemic in India shows high variability across different geographical areas. There are of generalized epidemic in the south and north-east, with pockets of concentrated epidemics. There are also highly vulnerable regions with low-levels of HIV infection. A hundred and eleven districts in the country are classified as high HIV prevalence districts. Thus it can be said that there are multiple sub-national epidemics where HIV is spreading rapidly and wreaking havoc.

Transmission of HIV is predominantly through the sexual route 86%. Other routes compiled by NACO in 2005 indicate injecting drug use (IDU) in 2.4%, vertical transmission from mother to child in 3.6%, and transfusion of blood and blood products in 2%, and for remaining routes 6%. HIV transmission is on the increase among both adults and children in most parts of the country. Regional trends indicate increase in the occurrence of sexually transmitted infections (STIs).

AIDS in Rajasthan:

The state is characterized by all the drivers of the epidemic. There is significant presence of high risk groups, high in/out migration, high truck traffic, poverty, high population of youth and marginalized role of the women in the society. First HIV +ve case was detected in Pushkar in mid eighties. Number of AIDS cases by March 2005 was reported to be 1284. In 2005 number of HIV +ve in the State was estimated to be 88560.

Sentinel Surveillance for HIV the in Rajasthan

% of HIV+	1999	2000	2001	2002	2003	2004	2005
STD Clinics	3.20	5.79	4.17	5.48	5.10	3.48	4.82
ANC Clinic	0.25	0.33	.13	0.72	0.17	0.24	0.5
CSW					5.0	2.3	3.72
PPTCT*						0.38	0.89
VCTC*					18.09	15.48	12.25

* All data except PPTCT/VCTC are from Sentinel Surveillance of NACO.

Case Definition

Case definition for AIDS in India was revised in October, 1999 by NACO. The new case definition with a cut-off line for childhood at 12 years is as follows:

Up to 12 years of age

The positive tests for HIV infection by ERS (Elisa/Rapid/Simple) in children above 18 months or confirmed maternal HIV infection for children less than 18 months and presence of at least two major and two minor signs in the absence of known causes of immunosuppressant.

Major Signs:

- ▶ Loss of weight or failure to thrive which is not known to be due to medical causes other than HIV infection.
- ▶ Chronic diarrhea (intermittent or continuous) > 1 month duration.
- ▶ Prolonged fever (intermittent or continuous) > 1 month duration.

Minor Signs:

- ▶ Repeat common infections (e.g. Pneumonitis, otitis, pharyngitis etc.)
- ▶ Generalized lymphadenopathy.
- ▶ Oro pharyngeal candidiasis.
- ▶ Persistent cough for more than 1 month.
- ▶ Disseminated maculo-papular dermatitis.

Persons above 12 years of age : Two positive tests for HIV infection by ERS (Elisa/Rapid/Simple) test and any one of the following criteria:-

- ▶ Significant weight loss (>10%) within last one month/Cachexia (not known to be due to a condition other than HIV infection)
- ▶ Chronic diarrhea (intermittent or continuous) > 1 month duration prolonged fever (intermittent or continuous) > 1 month duration.
- ▶ Extensive pulmonary, disseminated, miliary or extra-pulmonary tuberculosis.
- ▶ Neurological impairment preventing independent daily activities, not excluding trauma.
- ▶ Candidiasis of the oesophagus
- ▶ Recurrent episodes of pneumonia.
- ▶ Kaposi's Sarcoma.
- ▶ Cryptococcal meningitis; Neuro Toxoplasmosis; CMV retinitis.

Laboratory Diagnosis of HIV Infection:

The diagnosis of HIV infection is based on the detection of HIV antibodies in the blood of infected persons. A variety of HIV antibody assays using different methodologies are available. These assays can be broadly classified into three groups: (i) Enzyme-linked immunosorbent assay (ELISA); (ii) Western blot assay; and (iii) Rapid tests. HIV antibody assays are used are: (i) transfusion and transplant safety (for the safety of the recipient); (ii) surveillance (for estimating disease burden in the population) and (iii) diagnosis of HIV infection (this includes VCT and clinical care). Biological assays are not accurate 100% all the time. Each biological assay has the potential to give false-positive or false-negative results. The accuracy of a certain assay to distinguish between HIV-infected and uninfected subjects is described by its sensitivity, specificity and predictive value.

Testing Strategies: UNAIDS and WHO recommend three testing strategies to maximize accuracy while minimizing costs depending on the setting.

Strategy one: All blood is tested with one ELISA or rapid antibody assay. All positive results are considered infected and all negative results uninfected. This strategy is employed in two main settings viz Transfusion/transplant service and Surveillance.

Strategy two: All samples are initially tested with one ELISA or rapid test. Any sample found to be reactive with the first test will be tested by a second test, which should differ from the first test in that it uses a different method and/or antigens. Repeat testing strategies are recommended for surveillance in low-prevalence countries.

Strategy three: This is similar to 'strategy two' except that a third test is performed on all positive samples that have been detected. Therefore, all concordant positive specimens and all discordant specimens are retested using a third assay. This strategy is currently used in VCTs in India.

AIDS Prevention and Control Program:

Soon after reporting of the first few HIV/AIDS cases in the country a high powered National AIDS Committee was constituted in 1986. National AIDS Control Programme was launched in year 1987. With the support of WHO, a medium term plan for HIV/AIDS Control was developed \$ 10 million in 1989. This plan was focussed on Maharashtra, Tamil Nadu, West Bengal, Manipur, and Delhi.

National AIDS Control Project - I (1992-99) :

First phase of AIDS control at national level began as a project in 1992. Basic components of this phase were:-

- ▶ Strengthening management capacity for HIV/AIDS control;
- ▶ Promoting public awareness and community support;
- ▶ Improving safety and rational use of blood;
- ▶ Controlling sexually transmitted diseases; and
- ▶ Building surveillance and clinical management capacity.

National AIDS Control Project Phase - II (1999 - 2006) :

It became effective from November, 1999. It is a 100% centrally sponsored scheme implemented in 32 States/UTs and 3 Municipal Corporations namely Ahmedabad, Chennai and Mumbai through AIDS Control Societies. NACO made it a mandatory condition for the states to implement.

SURVEILLANCE		PREVENTION		CARE
Evidence based planning	High risk populations	Low risk populations	Low cost care & support	
Annual Sentinel Surveillance	Targeted interventions	IEC and Sensitizing young adults	Prevention of perinatal HIV transmission	
AIDS Case Detection	STD treatment	Blood safety	Management of HIV-TB Co-Infection	
Mapping of high risk groups	Condom Promotion	Voluntary counseling and testing	Treatment of Opportunistic Infections	
Behavioral Surveillance	Inter-sectoral collaboration	AIDS Vaccine Initiative	Piloting ART	
	Training of medical, para medical partners	Workplace interventions	Post Exposure Prophylaxis	
			Community Care Centres	

Second phase which lasted over seven years from 1999 to 2006 focused on:

- ▶ Shift from raising awareness to changing behavior.
- ▶ Program delivery made flexible, evidence-based, participatory.
- ▶ Encouraging voluntary counseling and testing.
- ▶ Evidence-based annual reviews
- ▶ Supporting ongoing operational research; and
- ▶ Better managed State level AIDS Control Societies.

In Rajasthan AIDS Control activities began in 1987 with the establishment of vigilance center in SMS Hospital, Jaipur. Rajasthan State AIDS Control Society was established under the chairmanship of Health Secretary in 1998. The second Phase of AIDS Control Programme was initiated from April 1999, for five years subsequently extended up to March 2007.

Priority Targeted Intervention: The project aims to review the spread of HIV in groups at high risk; providing peer counseling; condom promotion; treatment of STI and enabling environment. These services are delivered directly through Medical and Health Department as well as NGO. Primary health care providers are trained in syndromic case management and counseling in condom use. The client programmes through NGOs aim to deliver targeted IEC, condom promotion and STI treatment and counseling to clients of commercial sex workers.

IEC: Communication is one of the most important strategies in the fight against HIV/AIDS in the absence of vaccine or cure. IEC is a process that informs, motivates and helps people to adopt and maintain healthy practices and life skills. It also empowers individuals to make correct decisions about safe behavior practices. The IEC activities also include local IEC campaign using traditional media such as folk arts and street theaters, promotion of advocacy campaigns, organizing family health awareness campaign and conducting awareness programme geared toward youth and college students. Medical officers should keep in touch with EPO in their district for procuring educative material on AIDS.

Blood Safety: The major objective of the blood safety programme is to ensure the easily accessible adequate supplies of safe and quality blood and blood components for all irrespective of economic or social status. As per the national blood safety policy, testing of every unit of blood is mandatory for detecting infection for diseases like syphilis, malaria, hepatitis B& C and HIV.

STD Control Program: Since STD is the precursor to HIV, treatment of STDs along with counseling for safe sex practices are given priority. All district hospitals and selected sub-district facilities have been given additional inputs to start TB Clinics.

Voluntary Counseling & Testing Centers: VCTCs are the gateway to HIV prevention and treatment. They aim at reducing HIV transmission by:

- Increasing people's access to knowledge and understanding of HIV status on a voluntary basis.

- ▶ Facilitating early uptake of services for HIV-positive as well as negative people on medical, psychological, legal and social issues.
- ▶ Providing tools for the adoption of safe behaviour.
- ▶ Increasing awareness and information in communities.
- ▶ Reducing and removing stigmatization and discrimination associated with the epidemic.

The aim of VCTC is to reach people 'early' i.e. before they are sick. VCTC 'targets' people who are healthy (or feel healthy) and who may have indulged in high-risk behaviour (HRB) or are exposed to HIV. The services these people seek in a VCTC, range from information and clarification of doubts, to diagnosis and treatment of curable diseases. With no cure for AIDS, clients who visit VCTCs face more fear, stigma and discrimination than people accessing traditional health-care services. The informed consent and confidentiality is the necessary pre condition for effective VCT services. VCT services are available in all Medical Colleges, District Hospitals and few CHCs in Rajasthan. They are managed by one male and one female counselor and the technician. Any person can receive pre & post test counseling in VCTC including blood testing on payment of Rs.10/- only.

PPTCT: The program was initiated in Dec. 2003 with the objectives:

- ▶ To reduce the proportion of infants affected with HIV by 50% by 2010
- ▶ To reduce the prevalence of HIV infection among pregnant women in age group of 15-29 years.
- ▶ To reduce MTCT by providing ART services to affected pregnant woman.

PPTCT intervention package includes antenatal care, group education, HIV testing, post test counseling, institutional delivery, administration of nevirapine to women and single dose suspension, (2mg per kg to neonate), counseling of feeding options, care and follow up. These services are available in all Medical Colleges and District Hospital of the State.

School AIDS Education Program: Students in class 9-11 should have adequate and accurate knowledge of HIV. They should know about themselves, their adolescence and their sexuality, clarify misconceptions and find ways to fight the HIV epidemic. This programme is implemented through trained teachers and peer educators.

Condom Promotion: The most successful and practical way to prevent the transmission of HIV/STI is the use of condoms. They are supplied through free

distribution, social marketing and condom vending machines. Program also collaborates with existing IEC programme for averting conception as well as other STD.

HIV-TB Co-ordination: The inextricably linked pathogenesis and epidemiology to TB and HIV are well known. HIV fuels progression to active disease in people infected with TB; HIV infected individuals co-infected with TB have an annual risk of 5-15% of developing active TB. Rates of recurrence both due to endogenous reactivation and exogenous re-infection are increased, as is the increased risk of transmission to the general population on account of increasing TB cases amongst the HIV positive.

ART: Rajasthan has two ART centers, one in SMS Medical College, Jaipur and other in SN Medical College, Jodhpur. Jaipur city also has one Community Care Center and Drop-in Center for people living with HIV/AIDS.

HIV Sentinel Surveillance: It implies carrying out cross sectional studies of HIV sero-prevalence at regular interval. Since 1998, it is being regularly conducted in later half of each year. NACO and RSACS conducts the annual sentinel surveillance in collaboration with NIHFWS every year. It helps in eliciting trends and estimating the number and characteristic of the HIV positives. In the sentinel surveillance conducted between August and October of 2006, in all 48 sites were chosen including ANC and STD clinics of selected large Hospitals and CSW sites in the field. Editor of this book has consistently coordinated the sentinel surveillance rounds of HIV from 1999 to 2005 in Rajasthan on behalf of NIHFWS and NACO.

National AIDS Control Project III:

While NACP II focused primarily on prevention and low cost care through tertiary and district levels health care institution. NACP III is planning to integrate and scale up quality service delivery to sub-district and community levels through existing infrastructure. It would also explore effective public private partnership in selected problem area. NACP-III also proposes reducing new infections in the community by 60% in high prevalence states and by 40% in the low prevalence states. The program selectively addresses different populations based on their risk profile, vulnerability and need for services. The services targeting the different population groups are also different in character and need. Linkages will be established between the different services provider, which is essential to integration of prevention and care and support activities of the program.

Target Population	Type of Services	Delivery
General	Preventive	Linkage with NRHM and PRI institutions will be strengthened. Mainstreaming and Partnership with identified P.P.
High Risk Behaviour Groups FSW, MSM, IDU	Prevention Services	Primarily through NGO/CBO delivering targeted interventions
People Living with HIV/AIDS	CST Services	Public sector institutions in primary, secondary and tertiary levels. Mission Hospitals and not-for profit Trust hospital.

Anti Discrimination Cell : AIDS is a disease which got stigmatized since its inception mainly because of its mode of transmission due to many kinds of socially unaccepted sexual behaviors leading to the most dreadful disease with a stigma of incurability resulting in a variety of psycho-social discrimination. Stigma and discrimination associated with HIV and AIDS are one of the greatest barriers in preventing further infections, providing adequate care, support and treatment and alleviating the impact of HIV/AIDS. To reduce the stigma and discrimination faced by the people living with HIV/AIDS (PLHAs) an Anti-Discrimination cell is being established at State level. The members of this cell are Secretary, State Human Rights Commission; PD, RSACS; and two representatives of NGOs. So far no complaints have been reported at Rajasthan State AIDS Control Society.

Role and Responsibility of Medical Officer in NACP:

Blood Safety: Ensure safe and rational use of blood, promote voluntary blood donation, monitoring of blood bank and blood storage centers.

IEC: Procure and ensure proper utilization of IEC material; participates in advocacy workshops and sensitization training.

STD: Ensure drug availability syndromic management of STD.and proper referral.

VCTC: Ensure proper counseling, testing and confidentiality of the persons who voluntarily reach of there failities.. VCTC also ensure optimal utilization of services through IEC, referral and establishing linkage with CBOs and NGOs.

PPTCT: Ensure counseling and testing of ANC cases, safe delivery, universal precautions and prophylactic medicines to HIV+ve pregnant and neonate including follow-up.

Condom Promotion: Promoting use of condoms

Others: Ensure convergence with RCH and NRHM, mainstreaming with other departments, observation of World AIDS Day and help out the people living with HIV/AIDS.

Tuberculosis Control

R.S. Sisodia

"Five thousand people (globally) die from tuberculosis every day, although the disease is both preventable and curable, Clearly, we must work harder if we have to achieve, by 2015, the Millennium Development Goal of halting and beginning to reverse the spread of TB as one of the world's major diseases"
"Kofi A Annan- 2006.

Tuberculosis (TB) is an infective disease caused by the *Mycobacterium tuberculosis*. It spreads through air. The disease affects primarily people in their most productive years of life and is commonly associated with poverty, overcrowding and malnutrition. Lack of education, environmental pollution and poor sanitation compound the problem. Further, TB and HIV co-infection increases the risk of latent tuberculosis infection by 5-7 times into active disease with high fatality rate.

One-third of the world's population is infected with tuberculosis. Eventually they are at risk of developing the disease. Each year over 8 million people develop active tuberculosis and nearly 2 million die of it. Over 90% of these cases and deaths occur in developing countries.

Problem in India

India accounts for one fifth of the global incidence of TB. Over 40% of the Indian population is infected with tuberculosis, and of those one-tenth will develop active tuberculosis at some point in life. With over 18 lakh cases annually, of which nearly 8 lakh are infectious and 3.7 lakh deaths, tuberculosis continues to be a significant public health problem in the country. Untreated case of pulmonary TB can infect 10-15 persons in a year unless effectively treated. TB is the leading infectious cause of death in adults (TB India, 2006).

Economic burden: In India, TB kills more adults in the most productive age group (15-54 years) than any other infected disease, thereby causing huge social and economic disruption. On an average, 3-4 months of work time are lost if an

adult has TB, resulting in the loss of 20-30% of annual household income (TB India, 2005). An average of 15 years of income is lost if an individual dies of the disease. In India, the direct and indirect cost of TB amount to Rs. 12, 000 crore.

Social burden: The burden of TB is compounded by the stigma attached to the disease. TB kills more women in India than any other infectious disease, and more than all causes of maternal mortality combined. Moreover, women with TB are stigmatized- more than 1 lakh women are abandoned by their families each year because of TB. Women are inhibited in discussing their illness and participating in social functions due to fear of becoming an outcast. The disease also has an adverse impact on children. It leads to a large number of children becoming orphans, and every year in India alone, 3 lakh children leave school on account of their parents' TB.

TB and HIV: TB is the most common opportunistic disease in people living with HIV. India has the second largest HIV infected population in the world with over 5 million Indians infected with HIV. It is estimated that 40% of them are co-infected with TB. Lifetime risk of people developing TB disease is 10% in those who are infected with TB and are HIV negative, compared to 50% in case of HIV infected. HIV is the most powerful factor in converting TB infection into disease. In a reciprocal manner, TB accelerates the progression of HIV into AIDS, thus reducing the chances of survival of HIV +ve persons.

Multi drug- resistant TB (MDR TB): Multi drug- resistant TB refers to strains of tuberculosis bacteria that have developed resistance to the two most effective anti- TB drugs available-isoniazid and rifampicin. MDR can be diagnosed only in a specialized laboratory. The treatment of MDR requires at least 18-24 months of chemotherapy, which is 100times more expensive and often highly toxic with a high failure rate.

National TB Control Programme (NTCP):

The National TB Control program (NTCP) was launched in 1962 as a comprehensive, realistic and feasible programme to control TB in India. It was thought of continuing NTCP till TB ceases to be community health problem through its defined components-case finding, case holding treatment and immunization. Though technically sound and operationally feasible, NTCP failed to fulfill required expectations. Case finding and case holding activities are reported to be less than 30% and 40% respectively. Relapse rate 15%, drug resistance 20% and death rate 53 per 1 lakh of population were reported. A

nation-wide review conducted in 1992 by GOI to assess the status of NTCP revealed less than 30% treatment completion; poor quality of sputum microscopy; undue emphasis on X-ray for diagnosis of pulmonary TB; emphasis on case detection rather than cure; multiplicity of treatment regimens; poor organizational set-up and support for TB; inadequate budgetary outlay and shortage of anti-TB drug and poor IEC activities

Revised National Tuberculosis programme (RNTCP)

GOI evolved RNTCP using DOTS strategy with the technical assistance from WHO and fiscal support by World Bank. RNTCP strengthens the identified weaknesses of the programme and stresses the effective utilization of available infrastructure. The objectives of RNTCP are to detect 70% cases and to achieve a cure rate of 85% or more in new sputum positive cases.

Status in Rajasthan:

RNTCP in Rajasthan covers whole State which implies all 32 districts with a population of more than six crores. All districts have a TB clinic coordinated by a TB Cell at state level. A network of 145 TB units, 725 microscopy centers and 1978 treatment centers exists in the State. In all 14000 places have been identified throughout the state to provide directly observed treatment under supervision. Support from 130 NGOs is also being drawn. A core committee of six experts in each Medical College functions to contain TB. All ESI dispensaries and Hospitals also help in this work. Medical care facilities of railways and CGHS also extends their help in this work. Under NRHM it is proposed that ASHA *Sahyogini* will be oriented for their involvement in DOTS. In 17 districts, TB-HIV committees have been constituted. Following table indicates the performance of the program:-

Year	Annual case detection rate	NSP* case detection rate	NSP conversion rate in 3 months	Cure rate in NSP
	135/1 lakh.	70%		
2001	152	60	90	85
2002	165	65	91	87
2003	165	63	91	87
2004	173.50	65.25	91.50	86.50
2005	167.50	61.75	90.75	
2006	172.50	64.25	90.75	

*New sputum positive

Social Impact of RNTCP in Rajasthan:

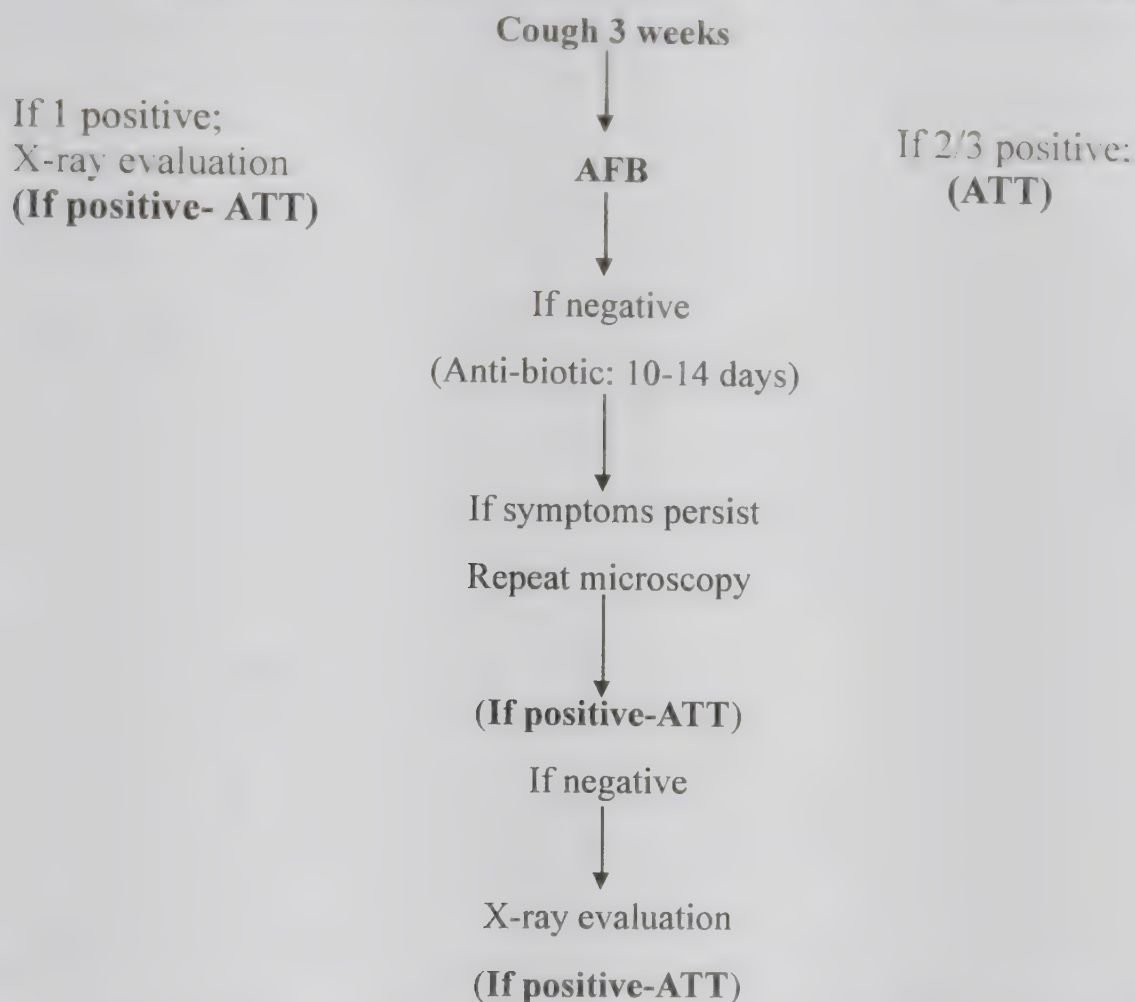
Year	Cases treated	No of NSP treated	No of Lives saved
2001	84557	33304	15220
2002	93462	36470	16823
2003	98147	37459	17666
2004	105596	30655	19007
2005	104315	38354	18776
2006*	107780	40149	19400

* Preliminary data

DOTS Strategy : It was evolved in 1950 in India wherein the patients swallowed anti-TB drugs on intermittent basis under direct observation of health workers. GOI tested the revised this strategy in 1993 at 5 pilot sites but rapid expansion started in late 1998. Nationwide coverage took place by March 2006. this strategy ensures adequate funds, staff, trainings, review meetings and other key inputs. Diagnosis, primarily by microscopy at peripheral health facilities; Regular/ uninterrupted supply of anti-TB drugs (patient wise boxes and loose drugs); Direct observation of treatment by health worker ensuring every dose swallowed by the patient in the intensive phase and first dose of the weekly pack in the continuation phase; Systematic monitoring, accountability and cohort analysis. Success rate of DOTS is up to 95%; It prevents the spread of tuberculous bacilli, reducing the incidence and prevalence of TB. It helps in alleviating poverty by conserving youth energy and saving lives, reducing the duration of illness and preventing new infectious cases. It improves the quality of care and removes stigma. It prevents treatment failure and the emergence of multiple by ensuring patients adherence and uninterrupted supply of anti-TB drugs; It provides credence to TB control efforts; It provides a model for strengthening health services.

Diagnosis of cases

(i) *Sputum Microscopy* : Patients with history of cough for three weeks or more are recommended 3 sputum samples in 2 consecutive days (spot-1st day, over night and spot-2nd day). Diagnostic algorithm would be followed as under:



(ii) *X-ray Examination*:- It has a complementary role in the diagnosis of pulmonary TB. It also helps in the diagnosis of extra pulmonary TB

(iii) *Montoux Test*- It is an exceedingly useful test for selection of children who have had infection with mycobacterium tuberculosis. A positive tuberculin infection denotes the presence of tuberculosis infection, while negative reaction in children generally rules out the possibility of active disease except in certain exceptions. 0.1 ml of PPD-RT- 23 with Tween 80 is injected intra cutaneously on the anterior aspect of left fore arms. Reaction is classified on the basis of induration and not erythema and the diameter is recorded in millimeters. The grading is 1-6 mm Negative; 7-9 mm- border line (doubtful); 10-15 mm- Positive; and more than 15mm-Strongly positive

(iv) *FNAC/tissue biopsy*: Presence of granulomatous lesion

Drug regimen under RNTCP: Once the patient is diagnosed as having TB, he (s) is placed in one of the following categories:

Clinical Features/Category	Drug Regimen and Duration of Treatment
<u>Category I (New Cases)</u> Pulmonary sputum-positive, Seriously ill sputum-negative pulmonary, Seriously ill extra-pulmonary cases	$2 \text{ (HRZE)}_3 / 4 \text{ (HR)}_3$ (6 months)
<u>Category II (Re-treatment cases):</u> Positive sputum smear, Patient relapsed positive sputum smear, Treatment failed positive sputum smear, Patient treated after default	$2 \text{ (SHRZE)}_3 / 1 \text{ (HRZE)}_3 / 5 \text{ (HRE)}_3$ (8 months)
<u>Category III (New Cases):</u> Negative sputum smear, abnormal radiograph, Patient is not seriously ill, Patient has extra-pulmonary tuberculosis, but is not seriously ill.	$2 \text{ (RHZ)}_3 / 4 \text{ (RH)}_3$ (6 months)

Case Definitions

Pulmonary Tuberculosis : TB is diagnosed if two initial sputum examinations under direct smear microscopy are positive for AFB *or* even with one-sputum smear positive for AFB and radiographic abnormalities consistent with active pulmonary TB and when culture is positive for *M. tuberculosis*. In a patient with symptoms suggestive of TB with at least 3 sputum smear examinations are negative for AFB, but radiographic abnormalities are consistent with active pulmonary TB *or* diagnosis is based on positive culture but negative AFB sputum smear examinations.

Extra Pulmonary Tuberculosis: In TB of any other organ, such as the pleura, lymph nodes, intestines, genitourinary tract, skin, joints, and bones, meninges of the brain etc diagnosis should be based on culture. Histological, radiological, or strong clinical evidence of extrapulmonary tuberculosis should precede the decision of MO to treat with a full course of anti-TB therapy. Pleurisy is classified as extra pulmonary TB. A patient diagnosed with both sputum positive pulmonary and extra pulmonary TB should be classified as pulmonary TB.

Determining Types of Cases: Once the category of the patient is decided, the type is determined following the standard definitions as under:

New	A patient who has never had treatment for tuberculosis or has taken anti-tuberculosis drugs for less than one month.
Relapse	A TB patient who was declared cured or treatment completed by a physician, but who reports back to the health service and is now found to be sputum smear- positive.
Transferred in	A patient who has been received for treatment into a Tuberculosis Unit, after starting treatment in another unit where s/he has been registered.
Treatment after default	A TB patient who received anti -tuberculosis treatment for one month or more from any source and returns to treatment after having defaulted, i.e. not taken anti TB drugs consecutively for two months or more, and is found to be sputum smear positive.
Failure	Any TB patient who is smear positive at 5 months or more after starting treatment. Failure also includes a patient who was treated with category III regimen but who becomes smear positive during treatment.
Chronic	A patient who remains smear - positive after completing a re-treatment regimen.
Other	TB Patients who do not fit into the above - mentioned types. Reasons for putting a patient in this type must be specified.

Determining Treatment outcomes: Once the patient is registered under RNTCP, the treatment outcomes are determined as per standard definition as follows:

Cured	Initially sputum smear-positive patient who has completed treatment and had negative sputum smears on two occasions, one of which was at the end of treatment.
Defaulted	A patient who has not taken anti- TB treatment for 2 months or more consecutively after starting treatment.
Died	Patient who died during the course of treatment regardless of cause.
Transferred out	A patient who has been transferred to another Tuberculosis Unit/ District and his/her treatment result (outcome) is not known.
Treatment completed*	Sputum smear positive patient who has completed treatment, with negative smears at the end of intensive phase but none at the end of treatment <i>or</i> Sputum smear - negative patient who has received a full course of treatment and has not become smear - positive during or at the end of treatment. <i>or</i> Extra-pulmonary TB patient who has received a full course of treatment and has not become smear - positive during or at the end of treatment.
Failure	Any TB patient who is smear positive at 5 months or more after starting treatment. Failure also includes a patient who was treated with category III regimen but who becomes smear positive during treatment.

* Treatment Success is the sum of patients who are cured and those who have completed treatment. Definitions are from GOI Module 1.

Supervision and monitoring: Supervision is a systematic process for increasing the efficiency of health workers by developing their knowledge, perfecting their skills, improving their attitudes towards their work and increasing their motivation. It is thus an extension of training. Supervision is carried out in direct contact with the health worker. In simple terms, managers supervise health workers. Supervision should be performed at all levels of health infrastructure. All health workers need help to solve problems and overcome difficulties. They also need feedback on their performance and encouragement in their work. We should remember that:

- ▶ A good supervisor is a friend, philosopher and guide.
- ▶ Catch people doing something right rather than doing something wrong.
- ▶ Supervision should never be a faultfinding exercise.
- ▶ It should be used to identify local solutions for problems identified, if any.
- ▶ We should help people reach their full potential.
- ▶ People who feel motivated produce good results.

Monitoring indicators used under RNTCP: To evaluate the performance of the programme activities following technical indicators are used:

Indicators	Expected Value
Referral of TB suspects	> 2%
Positivity expected among TB suspects	5-15%
New smear-positive case detection	e 70%
Percentage of Smear positive patients placed on DOTS	> 90%
Conversion rate of NSP patients at 3 months	> 90%
Cure rate for NSP cases	e 85%
Death rate of NSP patients during treatment	< 4%
Default rate of NSP patients during treatment	< 5%
Failure rate of NSP at 5 months or later during treatment	< 4%
Rate of NSP patients transferred out	<3%

Supervisory Protocol: To sustain the programme day-to-day activities should be planned on monthly, quarterly and yearly basis. Supervisor should ensure through a protocol that programme activities are implemented in a defined manner and there is no diversion from normal course .

SN	Designation	Health facility visited	Frequency
1	STO	Each district	Twice a year
2	DTO	All TUs	Every month
		All DMCs	Every Quarter
3	DTO & 2 nd MO of DTC	Field Visits	3-5 days every week
		Patients Home & their DOTS providers visit	3 newly diagnosed NSP per field visit
		Medical College, if any	Once a month
4	MOTC	All DMCs	Every month
		All PHIs [Public & Private]	Every quarter
		Field visit	7 days every month
		Patients Home & their DOTS providers visit	3 newly diagnosed NSP per field visit
5	STS	All DMCs & PHIs	Once every month
		Home visit for all smear positive patients	Within 1 month of starting treatment
6	STLS	All DMCs	Once every month

RNTCP has made provision for orientation of the program for all doctors. Eventually they are advised to take the in-service trainings in a serious perspective. Such a step would further enhance the capacity of Doctors in identifying the serious problem and searching for possible solutions.

Further Reading

Training Module on RNTCP for Medical officers by GOI

Leprosy Control

S. P. Sharma

Leprosy (Hansen's disease) is a infectious disease caused by *Mycobacterium leprae*. It affects mainly the peripheral nerves, skin and muscles, the eyes, bones, testes and internal organs of body. The disease manifests in two forms (i) Lepromatous Leprosy and (ii) Tuberculoid Leprosy. Leprosy is clinically characterized by Hypopigmented Patches over skin; Partial or total loss of skin sensations in the affected areas; Presence of thickened nerves; Presence of acid fast bacilli in the skin or nasal smears. The signs of advance disease include presence of nodular lumps especially in the skin of the face and ears, planter ulcers, loss of fingers or toes, nasal depression, foot drop, claw toes and other deformities.

Indian Classification of Leprosy (1981) :

- ▶ *Indeterminate type*: This denotes those early cases with one or two vague hypopigmented macules and definite sensory impairment. The lesions are bacteriologically negative.
- ▶ *Tuberculoid type*: This type denotes those case with one or two well-defined lesions, which may be flat or raised, hypopigmented or erythematous and are aneathetic. The lesions are bacteriologically negative.
- ▶ *Borderline type*: This type denotes those cases with four or more lesions which may be flat or raised, well or ill-defined, hypopigmented or erythematous and show sensory impairment or loss. The bacteriological positivity of these lesions is variable. Without treatment, it usually progresses to lepromatous type.
- ▶ *Lepromatous type*: This type denotes those cases with diffuse infiltration or numerous flat or raised, poorly defined, shiny, smooth, symmetrically distributed lesions. These lesions are bacteriologically positive.
- ▶ *Pure neuritic type*: This type denotes those cases of leprosy which show nerve involvement but do not have any lesion in the skin. These cases are bacteriologically negative.

Milestone in Leprosy Control

1873: Discovery of *Mycobacterium Leprae* by Henson of Norway.

- 1874: **Baily** founded Leper's Mission at Chamba (H.P.); later its hqs moved to Purlia (W.B.).
- 1943: Introduction of Sulphone drugs for leprosy treatment
- 1955: National Leprosy Control Programme in India was started.
- 1965: National Leprosy organization came in existence
- 1975: JALMA Leprosy institute was taken over by ICMR to promote research
- 1980: NLCP became 100% centrally sponsored program
- 1983: MDT introduced and NLCP renamed as NLEP
- 1994: MDT for Leprosy started throughout Rajasthan.

Thus Leprosy control is in operation since 1955. It strives to achieve control of leprosy through early detection of cases and DDC (Dapsone) monotherapy on an ambulatory basis. This program runs slowly in want of clear cut policies for two decades. It took a momentum during 4th five year plan which was made centrally sponsored program. In 1980 it was proposed “Eradicate” leprosy by the year 2000. A working group submitted its report in 1982 and recommended revised strategy based on multi drug therapy through reduction in the quantum of infection in the population and breaking the chain of transmission of disease. The aim was to reduce case load to 1 or less than 1 per 10,000 population.

Strategy: It is based on early deduction of cases by population surveys, school surveys, contact examination and multi drug therapy, health education, ulcer and deformity care and rehabilitation activities. It provides free domiciliary treatment in endemic districts through specially trained staff. In moderate to low endemic districts through mobile leprosy treatment units and PHC staffs. It was taken in phased manner. As a result the numbers of cases discharged as cured are increasing progressively over the years.

Infrastructure: The program is implemented through the establishment of Leprosy Control Units; Survey, Education and Treatment (SET) Centres; and Urban Leprosy Centres. The Leprosy Control Units are established in endemic areas with one Medical Officer; 2 non-medical supervisors; and 20 paramedical workers (PMW) each unit covering a population of 4.5 lakhs. Each PMW covers 15 to 20 thousand population and is expected to examine at least 8000 persons per year by house to house surveys in the population under his care. The staff appointed at SET centres comprise 1 PMW for 20 to 25 thousand population, and one non-medical supervisor for every 5 PMWs. The SET centres are attached to

the primary health centres and placed under the administrative control of the medical officer in charge of the primary health centre. One urban leprosy centre is established for every 50000 population.

Infrastructure for leprosy eradication program

Unit	(India)	Rajasthan
Leprosy Control Unit or Modified Leprosy Control Unit (LCU/MLCU)	778	06
Urban Leprosy Centre (ULC)	907	05
Survey: Education and Treatment Centre (SET)	5744	-
Temporary Hospitalization Ward (THW)	290	04
Reconstructive Surgery Unit (RSU)	75	-
Sample Survey cum Assessment Unit (SSAU)	40	-
Mobile Leprosy Treatment Units (MLTU)	350	31

N.L.E.P. in Rajasthan : It was launched in 1970-71 in five districts only envisaging domiciliary treatment by Dapsone. Realizing drawbacks of Dapsone, the GOI started multidrug therapy (MDT) and switched on to Leprosy Eradication Programme in 1981-82 with MDT viz. Rifampicin, clofazimine and Dapsone. In Rajasthan the MDT Project was started in the year 1994 with the World Bank assistance. All the 32 districts were brought under MDT through Mobile Leprosy Treatment Units (MLTU). District Leprosy Societies in all the districts were constituted under the chairmanship of District Collectors. District Leprosy Officer or Dy. CM&HO or Medical Officer I/c of MLTU have been nominated as Member Secretary of the Society. The MLTU team diagnoses the suspected cases and deliver treatment at the fixed places on fixed dates for 20-24 days in a month. MLTU provide services to the leprosy patients in non endemic district. Each MLTU consist of one Medical Officer, one Non Medical Officer, one Non Medical Supervisor, two paramedical workers and one driver. Status of Leprosy in Rajasthan during 2006-07 is as follows:

Estimated Cases	57093
Cases Detected	45493
Cases under treatment	5486
Cases discharged after treatment	55736
Cases yet to be detected	6561
Prevalence of Leprosy (per 10,000)	0.22

Status Of Leprosy in Rajasthan

Year	New case detection & registration for effective treatment			Disease free patients after treatment			Prevalence rate /10000 population
	Target	Achievement	% of Cure	Target	Achievement	% of Cure	
2000-01	1200	2033	169.41	7000	3679	52.56	0.82
2001-02	1200	2390	199.17	5000	2409	48.18	0.76
2002-03	800	2212	276.50	5000	2791	55.82	0.66
2003-04	800	2111	263.88	5000	3555	71.10	0.38
2004-05	-	1375	-	-	1786	-	0.31
2005-06	2182	1442	66.09	1996	1813	90.83	0.24
2006-07*	1510	698	46.22	1479	820	55.44	0.22

*Upto September 2006

Under MDT program the districts of have been divided into two categories according to their prevalence rate, i.e. 8 moderately endemic districts and 24 low endemic districts. In moderately endemic districts two MLTUs (Mobile Leprosy Treatment Units) are working and in low endemic districts one MLTU is working. Sufficient budget and vehicles have been provided to all the districts for successful implementation of the MDT program.

Treatment of Leprosy

Multibacillary Cases	
Adult Dosage	Child- 10-14 years Dosage
Monthly treatment-Day 1	Monthly treatment- Day 1
Rifampicin 600 mg (2 x 300 mg)	Rifampicin 450 mg (3x150mg)
Clofazimine 300 mg (3x100 mg)	Clofazimine 150 mg (3x50 mg)
Dapsone 100 mg	Dapsone 50 mg
Daily treatment 2-28 days	Daily treatment- 2-28 days
Clofazimine 50 mg	Clofazimine 50 mg every other day
Dapsone 100 mg	Dapsone 50 mg
Duration of treatment	Duration of treatment
12 blister packs in 18 months	12 blister packs in 18 months
Paucibacillary Cases	
Adult Dosage	Child-10-14 years Dosage
Monthly treatment- Day 1	Monthly treatment-Day 1
Rifampicin 600 mg (2x300 mg)	Rifampicin 450 mg (300x150 mg)
Dapsone 100 mg	Dapsone 50 mg
Daily treatment-2-28 days	Daily treatment-2-28 days
Dapsone 100 mg	Dapsone 50 mg
Duration of treatment	Duration of treatment
6 blister packs in 9 months	6 blister packs in 9 months

Role and Responsibilities of Staff in NLEP

CM&HO:

- ▶ As Vice Chairman District Leprosy Society, responsible for administration and implementation of leprosy control activities in whole district.
- ▶ Coordinate leprosy activities with all disciplines in health sector, NGO working for leprosy through organizing periodical meetings.
- ▶ Review the reports and records at health centre and provide guidance for better supervision.

MO at PHC:

- ▶ Final diagnosis of leprosy and classification referred by health workers.
- ▶ Ensure supervised MDT for all confirm cases.
- ▶ To conduct annual clinical surveillance of curd cases.
- ▶ Refer problem cases for expert opinion of DLO/consultant
- ▶ Arrange training for new staff at centres
- ▶ To collect reports through leprosy staff at the time of monthly meeting.
- ▶ Arrange funds from DLO and disburse account for MDT expenditures.

MO of Leprosy Unit:

- ▶ Operational planning and organization of unit.
- ▶ Supervise delivery of drugs, chemicals, equipments and IEC material along with availability of staff and vehicles.
- ▶ To get prepared monthly, quarterly and annual reports.
- ▶ Advice DLO on leave roster of leprosy control unit staff.
- ▶ To monitor NMSs, Health educators and PMWs and identify their problems.
- ▶ Supervise registration of patients, health educators and leprosy staff.
- ▶ Decide type of treatment and classification of leprosy cases and make clinical examination every six months of cases.
- ▶ To diagnose drug reactions and lepra reactions type I & II.
- ▶ Define and classify disabilities, decide release of patient and declared cured.
- ▶ Determine type of problem measure and rehabilitation required cases, individual cases and ensure to receive the case.

Non Medical Supervisor:

- ▶ To plan the work of PMW (NMA) in case detection, mobilization of cases for treatment and follow up and coordinate health education.
- ▶ Plan and Supervise patient at treatment points, absentees. Screening of contact population and screening survey.
- ▶ Verify records, reports and drug stock of PMW (NMA).
- ▶ Promote IEC activities.

Non Medical Assistant:

- ▶ Plan daily activities with in specified times and health education activities.
- ▶ Tentative diagnosis to be confirmed by NMS/ MO.
- ▶ Take Skin Smear and send to laboratory report supervised cases with complications and refer them.
- ▶ Suspect drugs side effects, lepra reactions and refer them to NMS/MO.
- ▶ Motivate patients for regular attendance to clinic.
- ▶ Trace and motivate absentees.
- ▶ Examine healthy family contacts.
- ▶ To Organize population and school survey and to keep records.
- ▶ To contact patient in his area at regular intervals.
- ▶ To educate them for regular treatment.

Blindness Control

S. P. Sharma

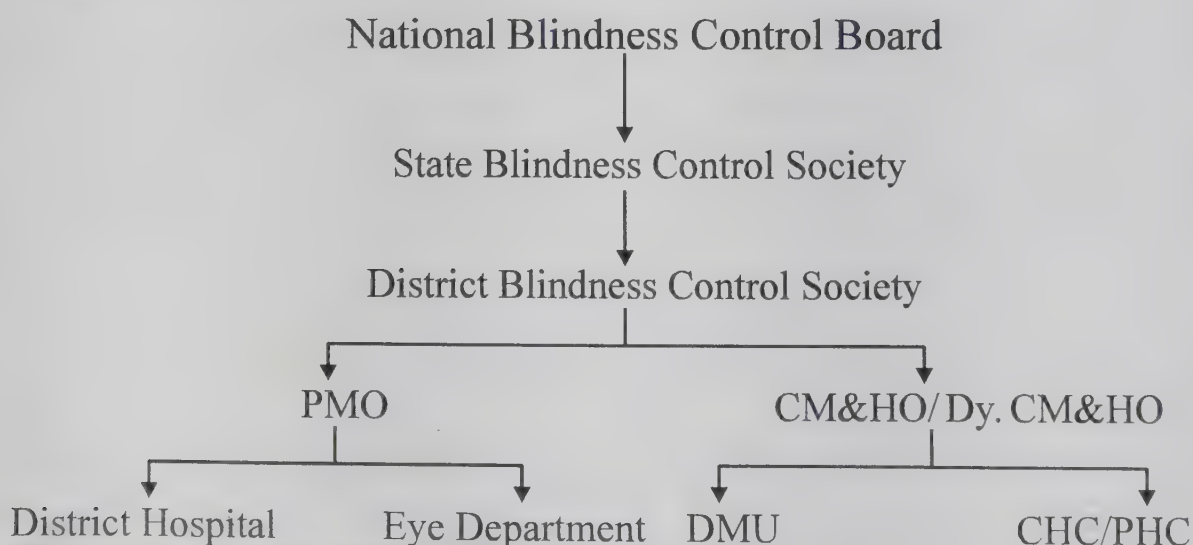
WHO defines blindness as Visual acuity 3/60 or less. In the absence of appropriate vision charts the WHO added the "Inability to count fingers in day light at a distance of 3 meters" which indicate less than 3/60 or its equivalent. National program in India defines blindness as visual acuity (VA) less than 6/60 in better eye with available correction. VA is sharpness of vision measured at the maximum distance at which a person can see a certain object divided by maximum distance at which a person with normal eye sight can see same object. VA less than 3/60 means a person cannot see at a distance of three meters. The national survey on blindness 2001-02 has estimated following causes of blindness.

Cataract	62.6%
Refractive errors	19.7%
Glaucoma	5.8%
Posterior segment	4.7%
Corneal opacity	0.9%
Others	6.2%

National Programme for Control of Blindness (NPCB)

NPCB was launched in 1976 as a 100% centrally sponsored program. It incorporated the trachoma control program which was started in 1956. Between 1994 and 2002, World Bank supported a cataract control project throughout India.

Organizational Structure of NPCB



Current Scenario in Rajasthan

Population (2005)	6 Crore (approx)
Prevalence of Blindness	1.55%
Estimated Blind Persons	93,00,000
No. of Blind person due to cataract (55%)	5,15,000
Annual incidence of cataract (2/1000)	1,20,000
Total Cataract cases to be operated every year	2,92,000

Cataract Operation in Rajasthan

Year	Target	Achievement	% of Achievement
2001-02	210000	196835	93.73
2002-03	220000	188747	85.79
2003-04	220000	226829	103.10
2004-05	230000	263315	114.20
2005-06	230000	271215	117.90

School Eye Screening and Eye Banking in Rajasthan

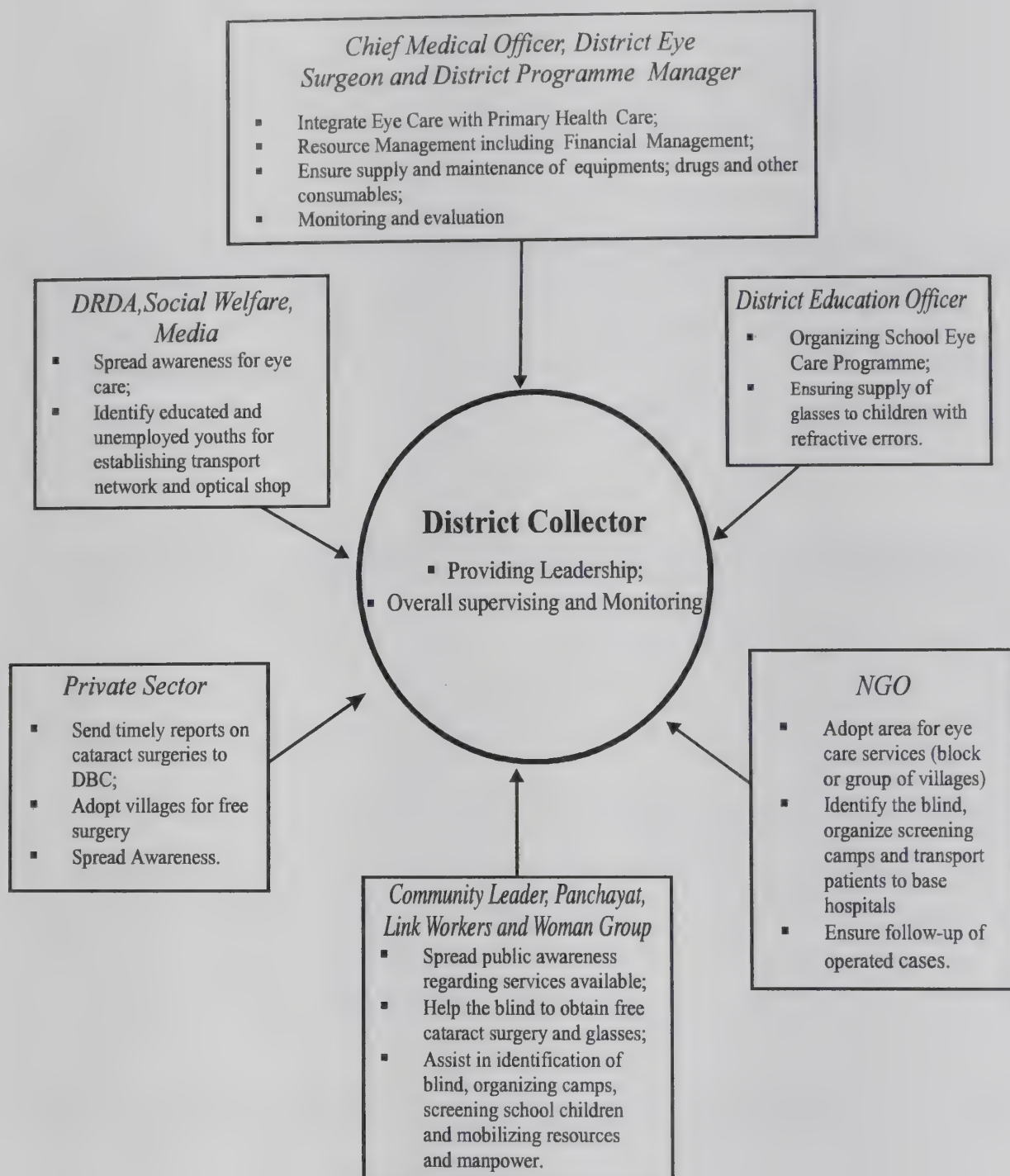
Name of Activity	2003-04	2004-05	2005-06
No. of students screened	263781	600682	14500693
Detected with Refractive error	4154	18138	19397
Provided Free Glasses	562	3973	7495
Eye collection for Keratoplasty	712	681	955
Total number of Keratoplasty	376	388	604

Blindness Control Programme in Rajasthan

Under Cataract Blindness project 1994-2000, mobile eye units were created in all districts. Eye departments of Medical Colleges were upgraded. Separate mobile unit was given to each medical college. At state level one ophthalmic cell to monitor a programme was established in Rajasthan. District Blindness Control Society Provide *grant-in-aid* for free cataract operations to NGO/ PRI on following norms :

	ICCE	ECCE/IOL	Phaco
Drugs and consumables	150	200	200
Sutures	50	50	0
Spectacles	125	125	125
Transport/ POL	100	100	100
Organization & Publicity	75	75	75
IOL Viscolastic & addl. consum	0	200	250
Total	500	750	750

Multi Sector Action in a District



Eye Banking in Rajasthan : Its main object is to collect cornea for transplantation (Keratoplasty). Eye departments of all Medical Colleges are upgraded to sustain Eye Banks. 8370 cases with corneal blindness are on record in 2006 in Rajasthan who are waiting for Keratoplasty. So far this facility is available only in Medical Colleges.

Eyesight fortnight: It is observed between 25th August and 8th September through out country. Funds worth Rs. 15,000/- are given to each DBCS for theme based fortnight observations.

Quality control: Upto 1995 conventional cataract surgery prevailed. Training to eye Surgeons resulted in 90% IOL surgery. Government of India has arranged various trainings for eye surgeons and staff through out country. SMS Medical College Jaipur and SN Medical College Jodhpur conduct two year course for Ophthalmic Assistants.

Technical trainings provided by GOR

Training	Duration	Places
ECCE-IOL	8 weeks	At designated Medical Colleges by GOI
Phaco-Surgery	8 weeks	Do
Laser-Surgery	8 weeks	Do
Vitreo-Retinal surgery	8 weeks	Do
Indirect Ophthalmoscopy	4 weeks	Do
Keratoplasty	8 weeks to 15 months	L.V.P. Institute, Hyderabad

National Vector Borne Disease Control Program

Moti Lal Jain and Sunil Bhatnagar

Since several activities of NVBDCP shall fall within the ambit of integrated disease surveillance project, readers are advised to concurrently go through the chapter on IDSP

Editor

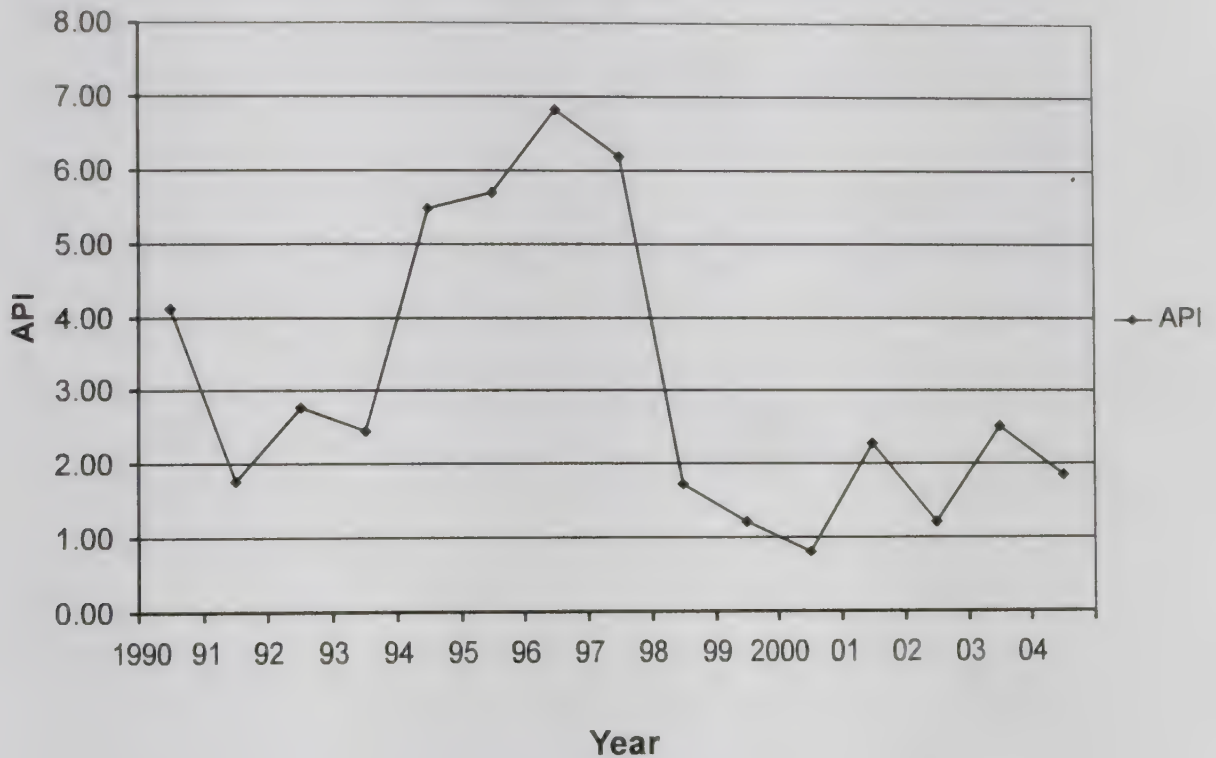
National Anti Malaria Program (NAMP) National Filariasis Control Program (NFCP), and Kala-azar Control Program are now converged with two other prevention and control programs namely Dengue/Dengue Hemorrhagic fever and Japanese Encephalitis (J.E.). The integrated scheme is now called as National Vector Borne Disease Control Program (NVBDCP). Its objective is to reduce the malaria morbidity by 50% and proportionate reduction in malaria mortality among under five children by 50%. NVBDCP intends to induce behavior change in people seeking treatment at public health facility in high-risk areas. Reduction in morbidity and mortality due to vector borne diseases will spontaneously facilitate socio-economic development.

Magnitude

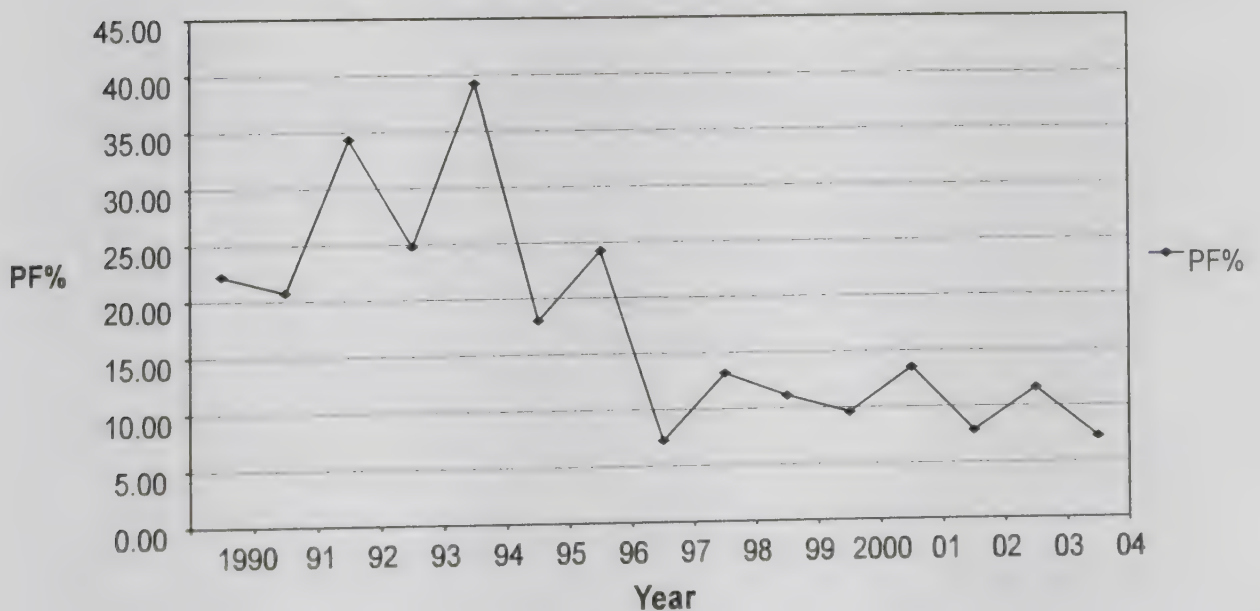
Malaria and Dengue are prevalent in Rajasthan. Malaria is wide spread and present in all the districts but Dengue is limited to 10-15 districts. There is no significant difference between rural and urban areas. *Anopheles Stephensi*, *A. Culicifacies* and *Aedes Aegypti* are the common vectors responsible for transmission of these diseases in state. Wide and varied disease burden seen in the State is due to its varied socio-economic and geographical disparity. The tribal and desert areas contribute 70% of Malaria diseases burden. The far flung areas with low population density are hindrance in implementation of public health programs in western Rajasthan. The domestic breeding of vector in household drinking water reservoirs contributed to the persistent endemicity. Seepages in the Indira Gandhi Canal with migratory population around it is the other risk factors in desert areas. The tribal belt with hilly terrain is also difficult to access. Low literacy, poor socio-economic status associated with cultural taboos compounds the problems. Tribal areas contribute 20 to 40% of the disease burden.

Between 2001 and 2003, Jaisalmer and Barmer districts reported API ranging from 10 to 35. *Stephensi* in household water reservoirs was found to be responsible for high level transmission. Migration and inaccessibility to far-flung areas made active surveillance difficult.

API Trends in Rajasthan



Trends in PF% in Rajasthan



Scenario of Malaria in Rajasthan

Year	Assumed Population	Positive Cases	Pf Cases	SPR	SFR	ABER	API	Pf%	% Reduction/increase
1994	44005990	241255	94614	4.97	1.95	11.03	5.48	39.22	
1995	44005990	250780	45262	4.84	0.87	11.77	5.70	18.05	- 52.16
1996	44005990	300547	72780	4.56	1.10	14.98	6.83	24.22	60.80
1997	44005990	272670	19742	4.54	0.33	13.64	6.20	7.24	- 72.87
1998	44005990	76438	10030	1.54	0.20	11.31	1.74	13.12	- 49.19
1999	44005990	53154	5875	1.02	0.11	11.87	1.21	11.05	- 41.43
2000	44005990	35973	3425	0.72	0.07	11.29	0.82	9.52	- 41.70
2001	56473000	129233	17405	1.92	0.26	11.96	2.29	13.47	408.18
2002	56473000	68627	5356	1.21	0.09	10.09	1.22	7.80	- 69.23
2003	56473000	142738	16481	1.82	0.21	13.89	2.53	11.55	207.71
2004	56473000	105022	7578	1.45	0.10	12.84	1.86	7.22	- 54.02
2005	56473000	50425	3661	0.78	0.06	11.49	0.89	7.26	- 51.69

Dangue Scenario

Dengue was not a major public health problem before 2001. A major outbreak was reported following outbreak in Delhi in 2001 mainly affecting urban area of Jaipur. 1222 sero-positive cases and 30 deaths were reported in 2001. In year 2001 regular sentinel surveillance Centres were established in all Medical College attached hospitals. District hospitals also started surveillance by providing facility for testing through Medical Relief Societies. Following shows Dengue cases in State as compiled at state level :

Dangue in Rajasthan

Year	Cases	Urban	Rural	Deaths
2001	1442	958	484	30
2002	325	165	160	5
2003	685	456	229	11
2004	207	100	107	5
2005	370	174	196	5
2006	1668	904	764	20

Manpower

In Rajasthan, Additional Director (Rural Health) is State Program Officer. S/he is assisted by one Joint Director; two Dy. Directors; and one Assistant Director (Malaria). In addition, two Entomologists work at state level. There is no separate District Malaria Officer. CM&HO is the program officer for Malaria control in the district. Dy. CMHO is responsible for the supervision and

monitoring of the respective sub-divisional areas assigned to them. Entomologist work only at the zonal offices at divisional headquarters. At the grass root level ANM and MPW look after the program. As all the vertical disease control programs are now being integrated under NRHM, all health supervisors including LHV and sector supervisors are being trained in VBD control activities and they will supervise the program with Malaria Inspector.

EMCP Districts : It is planned that all the districts from where Pf cases or death has been reported; or more than 30% API; or ABER is less than 10% will be considered for enhanced activities. In state of Rajasthan 15 district fall under in such situation. Thus central support shall be provided to these 15 district units and PHCs falling in their area.

Vision 2011

Future strategy to contain malaria has been documented as vision 2011. Sustained efforts are required to contain Malaria. Current trends and sustained efforts for Malaria Control provides a likelihood of keeping the API below one and Pf % below 10 up till 2011.

Strategy

- ▶ Early diagnosis with prompt and complete treatment to eliminate parasite.
- ▶ Integrated vector control (IVC) to reduce transmission.
- ▶ Training of doctors and para-medical staff.
- ▶ Behaviour change communication and social mobilization.
- ▶ Computerized MIS to collect regular information from all districts
- ▶ Partnership with of NGOs and PRIs

Early Diagnosis Prompt and Complete, Treatment (EDPCT)

- ▶ A single dose of chloroquine may save the life in *P.falciparum* cases by averting complications. This can be achieved through establishment of Drug Distribution Centres (DDC) in each village and hamlet .
- ▶ Ideally Fever Treatment Depot (FTD) is to be established for 1000 population to cover whole area but DDC is essentially to be established in remote and difficult areas where motivated local person is available.
- ▶ Primary health Centre is most important in averting the morbidity and mortality through strengthen passive surveillance. It will be ensured that all PHCs have good microscopes, trained lab technician and sufficient chemical and reagents.

- ▶ Mobility support is very important especially for western and tribal areas of state to support the active surveillance.
- ▶ The Establishment of Malaria Clinics in private sector has to be taken in consideration looking. It is proposed that an honorarium of Rs. 3 per slide examination not exceeding to a limit of Rs.45000 per month may be provided to the LTs working in private clinics/NGO
- ▶ Extensive use of Blister kombi-packs for radical treatment (RT) will enhance the compliance of drug treatment and control the pool of infection.

Rapid Diagnostic Kits (RDK) : They will be used by the mobile teams visiting the difficult area. They are particularly needed where services of lab technician are insufficient and/or in case of any outbreak where immediate containment measures are to be taken. These kits are very useful in tribal and desert areas.

Sentinel Surveillance : NGO working for Malaria control will be listed. In western Rajasthan some Malaria Clinics are being run by NGOs. Their lab technicians will be reoriented. Accreditation certificate will be issued to them post test. Incentives will be paid on the basis of job work @ Rs.3.00 per slide examination. Selected sentinel sites will be provided communication equipments, necessary medicines, chemicals and reagents. State Unit will enter in to MoU with the NGOs for specified period. The cross checking of the slides will be done as routine. Weekly reports will be received from these sentinel sites. IDSP software will have required information about variables required for sentinel surveillance. All 6 Medical College Hospitals in Public Sector and 2 Medical College in Private Sector will also be developed as sentinel centers. One Private hospital in each district will be selected as private sentinel centre. District hospital will act as sentinel centre in public system. Thus there will be 38 sentinel centers in public sector and 34 sentinel centers in private sector.

Indicators

Inputs

% of planned sentinel surveillance sites made functional

Establishment of mini-labs for quality testing of anti drugs.

Process

% of sentinel sites in public sector reporting regularly

% of sentinel sites in private sector reporting regularly

% of sentinel facilities reporting stock-out of essential malaria drugs

Output

% Sentinel surveillance sites having more than 5% mismatch

% of Malaria cases receiving treatment as per national guidelines

Outcome

% Malaria endemic districts preparing annual plans based on trends.

Case fatality rate < 10% among severe and complicated cases of malaria

Integrated Vector Management

In-house Residual Spray (IRS) : State has decided to reduce the spray through judicious selection and improving coverage of IRS eliciting participation of NGO and PRI. In most of the areas where the vector is resistant to DDT. First generation synthetic pyrethroids are 100% effective. Deltamethrin and Cyfluthrin were used in 2004 and alpha-cypermethrin is being used in 2005. Following table indicates the status of IRS in Rajasthan

Insecticide DDT50%	2003		2004	
	Sprayed Pop. (lakhs)	Coverage	Sprayed Pop. (lakhs)	Coverage % rooms
I round	61.55	69.24	54.5	67.99
II round	61.55	71.81	54.5	58.00
SP I round	Nil	Nil	14.1	80.00
II Round	Nil	Nil	14.1	80.00

Areas with only more than 5 API will be taken for IRS. In other areas alternative biological methods, antilarval operations, enhanced EDPT and ITMN will be preferred. Although these methods will also be used extensively in high-risk areas but these will be supported by IRS preferably with SP or focal spray.

Antilarval methods : Domestic breeding places in urban areas and household drinking water reservoirs in western Rajasthan need antilarval operations. Presently temephos is being used in western Rajasthan for tankas. Bio-larvicides may also be introduced in some areas.

Use of Larvivorous fishes : State has large number of hatcheries. In water scarce zone the cost of construction of hatcheries in Rajasthan is higher as compared with other states. A hatchery as per the NAMP guidelines costs approximately Rs.50000; further Rs.200 per month is required for their maintenance to ensure regular supply of water, cleaning and care of hatchery. Fishes were used

extensively in last transmission season (2006), especially in tribal areas. State is regularly deploying mobile teams and these teams also work and monitor antilarval operations including introduction of fishes.

Impregnated Mosquito Nets (ITMN) : In hot and humid climate, people do not prefer to sleep in nets. In Dungarpur it is being used since they were supplied free. The impregnation was also done in same district. There are pockets in rural and semi-urban areas where use of community owned bed nets can be observed. NGO can be involved to promote the use of bed nets. It is proposed that in the villages, families with poor socio-economic status be supplied free of cost bed nets. A token money can be charged from others in the project districts. Insecticide treated curtains can be promoted. A strong BCC campaign may be organized in the tribal areas for use of bed nets and other impregnated material.

Cross cutting interventions : Government is giving priority to tribal and desert area for developing additional sub-centres and providing buildings for residential accommodation of doctors and nursing staff. Proposals have also been moved to provide extra allowances for hard duty for stay of doctors and staff in hard areas. Public Private Partnership is also being promoted. State government has laid down policy for accepting donations and charity. Provision of land on concessional rates for private health setups is also available. All Medical Colleges and State Institute of Health and Family Welfare will be closely associated in training program. So far training is being provided to mid-level health managers and medical officers exclusively under EMCP but it would soon be incorporated under integrated package with training for all other program.

Behaviour Change Communication (BCC) : It is the key intervention that can accelerate the progress of malaria control. Village Contact Drive (VCD) is an innovative method for BCC through inter-personal communication (IPC). It is combined with service delivery through a campaign where a team of NGO and health workers stays in a village for 5 days for organizing BCC activities including group meetings, advocacy sessions, local specific IEC activities, use of folk and cultural media and dissemination of important messages. It is felt that BCC is only possible when IEC activities are associated with service delivery component. NGOs establish Malaria Clinics and MLV in the area. It is planned that project will provide financial assistance and material support to these NGOs for EDPT activities, antilarval operations with BCC. The media mix strategy will be adopted including use of audio-visual media, print media. Spots on TV channels and radio. Outdoor publicity through hoardings, wall paintings on

prominent places and bus panels also helps spread the message. Local bodies and municipalities will be involved on outdoor publicity for their area. Dramatics Department of University of Rajasthan will be involved in performing for dissemination of message and formulation of communication strategies. An impact evaluation study for BCC will also be taken up.

Operational Research : State has provided budget to DMRC for conducting a longitudinal study in Jaisalmer district for exploring factors contributing the persistent endemicity in western Rajasthan. The university and Medical Colleges will be involved in conducting vector resistance and drug resistant studies. The studies will also be conducted for impact evaluation of ITMN and need assessment in the areas where the coverage and usage is very low.

Monitoring and Evaluation : As stated earlier the information will be received regularly through computerized MIS on weekly basis and will be reviewed at state level. District will review it regularly for prediction and early detection. During any outbreak or increased incidence in high-risk areas daily report of the incidence and control activities will be reviewed. Control Rooms will be active for 24 hours round the year to immediately trigger outbreak response mechanism. Officer in charges of the district will regularly review the epidemiological situation and logistics during their visits. They will also check the functioning of Control Rooms and Rapid Response Teams. Next year MIS will be functional with the orientation of concerned officers with the launch of IDSP . District and State Surveillance Committee under IDSP will review the epidemiological situation of VBD for the prevention and control of these diseases. They will also work for intersectoral co-ordination and elicit information from private sector.

Financial Management : Following committees shall be constituted to manage the funding of ISDP.

		State Level	District Level
Chairman	-	PHS	District Collector
Co-chair	-	Director, PH	Zila Pramukh
Member Secretary	-	Addl. Director RH/NRHM	CM&HO

Separate bank account under the umbrella of existing State Health society will be opened in a nationalized bank by the name "State/District Health Society (NVBDGP)" operated by two signatories i.e. Chairman/Co-chairman and Member Secretary. A CAG empanelled Chartered Accountant will be appointed for audit of the accounts at state level to look after the accounts of state and district societies. Alternatively the Auditor under NRHM will audit the

accounts of all disease control Programs. Quarterly UC and monthly SOEs will be sent to the NVBDCP. All procurements and appointments will be made as per the guidelines of World Bank contract.

Further Reading:

1. Report of Committee on *Malaria Control in Rajasthan*, DM&HS, Jaipur, 1995.
2. Roy RD : *Mal-areas of Health*; Economic and Political Weekly. Page 122 to 129, January 13-2007

Integrated Disease Surveillance Project

Moti Lal Jain and Suneel Bhatnagar

World Bank is supporting Integrated Disease Surveillance Project (IDSP) in India since 2005. Eventually this project is in operation in Rajasthan for last two years. This write-up is a broad framework of the project relating the role and responsibilities of various stakeholders in IDSP.

Editor

Surveillance is defined as the ongoing systematic collection, collation, analysis, and interpretation of data and dissemination of information to those who are concerned in managing a given situation. The final link in the surveillance chain is the application of data to prevention and control of a disease. A surveillance system includes a functional capacity for data collection, analysis and dissemination linked to public health programs. Surveillance is the backbone of public health programme. It provides information for effective action to be taken in controlling and preventing diseases of public health importance. In some cases action must be immediate within hours in order to prevent large scale epidemics and deaths (cholera, meningitis, food contamination). In others, control and prevention activities are long term response to information about disease such as tuberculosis, HIV and non communicable disease.

Key Elements of Surveillance System: It includes detection and notification of health event; Collection and confirmation (epidemiological, clinical, laboratory) of data; Analysis and interpretation of data; Feed back and dissemination of results; Response- actions for prevention and control

Levels of Surveillance :

Activities	Periphery	District	State
Detection and notification of cases	+++	++	-
Collection and consolidation of data	+	+++	+++
Analysis and Interpretation	+	+++	+++
Investigation and confirmation	+++	+++	+
Feed Back	+	+++	++
Dissemination	+	++	++
Action	++	+++	+

Why do we need surveillance?

- Recognize cases to trigger interventions to reduce morbidity mortality.

- ▶ Determine the trends of health events.
- ▶ Allocate resources through logical public health planning.
- ▶ Monitor effectiveness of prevention and control measures.
- ▶ Identify high-risk groups to target interventions.
- ▶ Develop hypothesis about for disease causation, propagation or progression.

The Project : The IDSP proposes a comprehensive strategy for improving disease surveillance and response through an integrated approach. This approach provides for a rational use of resources for disease control and prevention. In the integrated disease surveillance system:

- ▶ The district level is the focus for integrating surveillance functions.
- ▶ All surveillance activities are coordinated and streamlined. Rather than using scarce resources to maintain vertical activities, resources are combined to collect information from a single focal point at each level.
- ▶ Several activities are combined into one integral activity to take advantage of similar surveillance functions, skills, resources and target populations.
- ▶ The IDSP integrates both public and private sector by involving the private practitioners, private hospitals, private labs, NGOs etc and also emphasis on community participation.
- ▶ The IDSP integrates communicable and non-communicable diseases. Common to both of them are their purpose in describing the health problem, monitoring trends, estimating the health burden and evaluating programs for prevention and control.
- ▶ Since rapid urbanization has resulted in the health services not keeping pace with the growing needs of the urban populace. the gaps in receiving health information from the urban areas needs to be bridged urgently.
- ▶ Integration with the Medical Colleges (both private and public) would also qualitatively improve the disease surveillance especially through better coverage.

Objectives

General: To provide a rational basis for decision-making and public health interventions that are efficacious in responding to priority diseases.

Specific : To establish a decentralized district-based system of surveillance for communicable and non-communicable diseases so that timely and effective public health actions can be initiated in response to health challenges in the urban and rural areas : and integrate existing surveillance activities (to the extent possible without having a negative impact on their activities)so as to avoid

duplication and facilitate sharing of information across all disease control programs and other stake holders, so that valid data are available for decision making at district, state and national levels.

Core conditions under surveillance

Regular Surveillance:

Vector Borne Disease : Malaria

Water Borne Disease : Acute Diarrhoea, Cholera, Typhoid, Jaundice

Respiratory Diseases : Tuberculosis Acute Respiratory Infection

Vaccine Preventable Diseases

Measles

Diseases under eradication

Polio

Other Conditions

Road Traffic Accidents

Other International Commitments

Plague, Yellow Fever

Unusual Clinical Syndromes

Menigoencephalitis/ Respiratory
Distress, hemorrhagic fevers,
other undiagnosed conditions

Sentinel Surveillance:

Other Conditions

Sexually transmitted diseases/
Blood borne HIV, HBC, HCV

Quality

Outdoor Air Quality (large urban centers)

Regular Periodic Surveys:

NCD Risk Factors

Anthropometry, Physical Activity,
Blood Pressure, Tobacco, Nutrition

State specific diseases:

Dengue, Malaria, Tuberculosis,
Preventable blindness, etc.

Surveillance for disease conditions is important for public health action:

- ▶ The number of core diseases is limited to improve quality of surveillance and to reduce work load on the peripheral health worker.
- ▶ Diseases and other conditions of regional importance will be under surveillance in addition to the above core list in all states.
- ▶ The list will be reviewed and modified according to the needs of surveillance at least once in two years.
- ▶ Does the disease condition have high health impact (morbidity, mortality disability) : Malaria, NCD risk factors, Road Traffic Accidents (RTA)
- ▶ Does it have significant epidemic potential? : Cholera, Measles

- ▶ Is it a target of a specific national, regional or international disease control program? : HIV, TB, Polio
- ▶ Will the information collected lead to significant public health action?

Types of Surveillance : Depending on the level of expertise and specificity, disease surveillance in IDSP will be of following three categories:

- ▶ *Syndromic*: Diagnosis made on the basis of symptoms/ clinical pattern by paramedical personnel and members of the community.
- ▶ *Presumptive*: Diagnosis made on typical history and clinical examination by Medical Officers.
- ▶ *Confirmed* Clinical diagnosis confirmed by an appropriate laboratory test.

Syndromic Surveillance : The paramedical staff will undertake disease surveillance based on broad categories of presentation. The clinical syndromes under surveillance are:

- ▶ Fever- less than seven days duration without any localizing signs; with rash; with altered sensorium or convulsions; bleeding from skin or mucous membrane; more than seven days with or without localizing signs
- ▶ Cough with or without fever.
- ▶ Acute Flaccid Paralysis
- ▶ Diarrhoea
- ▶ Jaundice
- ▶ Unusual events causing death or hospitalization

These syndromes are intended to pick up all priority diseases listed under IDSP for surveillance.

Role of Medical Officers: Though it is ideal to have all diseases under surveillance confirmed by laboratory tests, this is often not feasible. During routine surveillance, the diagnosis made by the Medical Officer is considered presumptive in nature. The validity of presumptive diagnosis of surveillance conditions will be higher than that of the syndromic one undertaken by the health worker. Under IDSP the MOs of PHC, CHC, Medical Colleges and Sentinel Centre will conduct presumptive surveillance routinely. This will be supplemented by confirmation of diseases by laboratory reporting.

Data collection : Several methods can be used for collecting data. While routine reporting (passive surveillance) is universalized, other methods are need and area specific. These include:

- ▶ Sentinel surveillance

- ▶ Active surveillance (active search for cases)
- ▶ Vector surveillance
- ▶ Laboratory surveillance
- ▶ Sample surveys
- ▶ Outbreak investigations
- ▶ Special studies

Routine reporting (institutional /passive reporting): Cases and deaths recorded in the outpatient or in-patient departments of hospitals, dispensaries, CHC, PHC and other health facilities are reported to the local health authority on a monthly basis. In the IDSP the essential surveillance components will be identified and transfer of information to program officers facilitated so that information for action is available on a weekly basis. Essentially it is institution based passive reporting. At each level in the system, the report is required to be analyzed and appropriate action taken as indicated. The reports should be checked for completeness and regularity as these factors can influence the analysis of the reports.

Sentinel Surveillance

A sentinel surveillance system is developed to obtain more reliable and extensive disease related information than the one that is available through the routine reporting. A hospital, health center, laboratory or a rehabilitation center which caters to a relatively large number of cases of the disease can be considered as a sentinel center. Sentinel centers can provide information on one or more diseases. Since the sentinel centers are carefully selected and because the number of the reporting units is much smaller, it is easier to maintain the quality and regularity of the reports. There should be a close liaison between the sentinel center and the local health authorities. The sentinel from the private sector can help in providing early warning signals, which should trigger action for outbreak investigation. The sentinel center data will not include all cases in the area. However, if one or more sentinel centers have been carefully selected, it will include sufficiently large number of cases for epidemiological analysis. Data from sentinel centers are useful to determine trends in the incidence of the disease reported. The district hospital, infectious disease hospital, medical college hospital (if located in the district) and other larger hospital and laboratories should be included as sentinel centers and report from these centers should be analyzed separately. These centers would also be submitting the routine monthly report under the passive surveillance system.

Regularity of reports : Monitoring the regularity of surveillance reports is an important function of the surveillance system. A list of all reporting units in the area must be kept. The Chief Medical and Health Officer of the district must identify the reporting units. Besides the PHCs and CHCs, hospitals, large dispensaries and clinics should be included as reporting units.

Frequency of reporting : A system of monthly reporting of diseases and programme specific data already exists in the districts. Many epidemic prone communicable diseases have short incubation period. If a review of the data is made only on a monthly basis, it might delay the timely identification of an outbreak in the early phase. If surveillance has to be action oriented, reporting units need to move into weekly reporting of cases of epidemic-prone diseases seen in their institutions. If pre-determined trigger levels are breached for a disease, it should serve as a warning signal for investigation. The area of residence of the patients should be checked and if these cases are clustered with respect to time and place, an immediate field visit is indicated. An epidemic can be averted by taking appropriate control measures in time. If an outbreak is suspected or identified, the next level should be notified immediately. Some outbreaks may be explosive and become apparent in a short time. This should be investigated immediately. Cases of acute hemorrhagic fever or encephalopathy should be investigated and reported immediately.

Daily reports are necessary once an outbreak has been identified so that the situation can be monitored. Neighboring areas would also need to step up surveillance activities to rule out the spread of the outbreak. After the outbreak has subsided, weekly reports should be continued for at least double the maximum incubation period of the disease. Only data that be used should be collected, otherwise it will clutter and overburden the system. All the data collected at PHC or district is not required to be transmitted to the state or central levels unless a special request is received.

Active Surveillance : However good the routine reporting system, there will still be cases that will not be recorded. Patients with mild or moderate severity may not seek treatment and some may go to private practitioners. It is also possible that patients in severe condition are taken directly to a large hospital in another district for specialized care. Some cases may die within a short period of onset of symptoms without receiving care at a health facility such as cases of neonatal tetanus. Active surveillance or active search for cases is resource intensive. The decision to start active surveillance depends on many factors and ground situation. Active search may be called for under the following circumstances.

- ▶ To assess the magnitude of the problem which helps in planning logistics for control. It give baselines data to evaluate control strategy. It also helps in understanding the genesis of the outbreak.
- ▶ To check if reports received by rumor registry are true.
- ▶ As the number of cases of a disease decline to negligible levels, it becomes important to receive information on every single case as quickly as possible to interrupt by further transmission e.g., Acute Flaccid Paralysis (AFP).
- ▶ To confirm the absence of even a single case. This is done during the pre-certification phase for disease eradication, as 'Zero' incidence has to be maintained for a period of three years.

During field visits by the supervisors, absence of disease can be confirmed by contacting few key persons such as a school teacher, gram pradhan, anganwadi worker and others. The health personnel, outreach personnel of other government departments, non-governmental organizations, panchayats and the members of the community must be encouraged to report cases. The lay case definition of the disease should be widely circulated for this purpose. The health personnel should not be punished or discouraged in any way from reporting cases as this will lead to suppression of vital information.

Laboratory surveillance : Plays an important part in confirming diseases since regular summary data can at best be presumptive. The validity of changing trends in suspect cases (syndromes) and presumed cases made by Medical Officers can be confirmed only by laboratory testing. Under IDSP, the laboratory network will report independently all confirmed cases in a prescribed format. This will allow understanding and validating the changes in pattern of syndromes and probable cases seen at the reporting centres.

Laboratories also help in diagnosis of cases for case management. This function will be facilitated by quick feed back of laboratory reports on a case based format back to the reporting units. Clinical samples should be collected and transported properly to the identified laboratories for appropriate tests. The samples should be labeled properly and accompanied with requisite epidemiological information.

Testing water samples for coliform organisms is a measure to determine the risk of water borne outbreaks. Water quality monitoring is recommended in vulnerable pockets and from sources supplying drinking water to a large population. Checking the chlorination levels of the water is also important, especially during the monsoon and post-monsoon periods. These measures by

the health department are precautionary measures in addition to the mandatory requirements of the concerned department.

Laboratory surveillance must be stepped up in anticipation or in the event of an outbreak. Serological and other laboratory based surveys are sometimes conducted as research projects to collect baseline prevalence rates or to identify high risk factors, age-groups or population sub-groups. The identification of new agents and changes in the behavior of micro-organisms especially in relation to susceptibility to anti-microbial are also important components of laboratory surveillance.

Outbreak Investigations

It is the primary method of confirming emerging infections. Suspected outbreaks are confirmed by outbreak investigations. It provides a rich source of epidemiological information. The outbreaks should be investigated to ascertain its etiology as well as to identify high risk areas and groups. Laboratory help should be utilized in establishing the diagnosis of early cases only. Once the cause of outbreak is confirmed, laboratory support should not be wasted for each and every case. The data collected as a result of outbreak investigations must be utilized for improving program activities and the surveillance system as well as for filling gaps identified as a result of these investigations. The results should be shared with other district officers and other states so that the experience gained could be effectively used for preventing such outbreaks in these areas.

Reporting Units participating in regular passive surveillance : The syndrome of fever will be kept under regular passive surveillance at the periphery by the reporting units in both public and private sector in rural and urban areas of the district. Primarily passive surveillance will be undertaken at all reporting units by the Medical Officer. Each reporting unit will provide a unique identifier so that identity and type of reporting unit can be recognized.

Reporting units for disease surveillance

	Public health sector	Private health sector
Rural	CHCs, District Hospitals	Sentinel Private practitioners (SPPs) and Sentinel hospitals.
Urban	Urban Hospitals ESI/ Railway/ Medical college hospitals	Sentinel Private nursing homes, Sentinel hospitals, Medical Colleges, Private and NGO laboratories.

Sub-center- Health Worker/ ANM reports all patients fulfilling the clinical syndrome from area covered by the sub-centre.

PHC/ CHC Medical Officers report as probable cases of interest where this cannot be confirmed by laboratory tests at the peripheral reporting units.

Sentinel Private Practitioners, District Hospitals, Municipal Hospitals, Medical colleges, Sentinel hospitals, NGOs-Medical Officers report as probable cases of interest.

Other Sentinel sites ANC Sites NACO-HIV/HBV/HCV surveillance;
Water Pollution Board; District Police Officer for Road Traffic Accidents

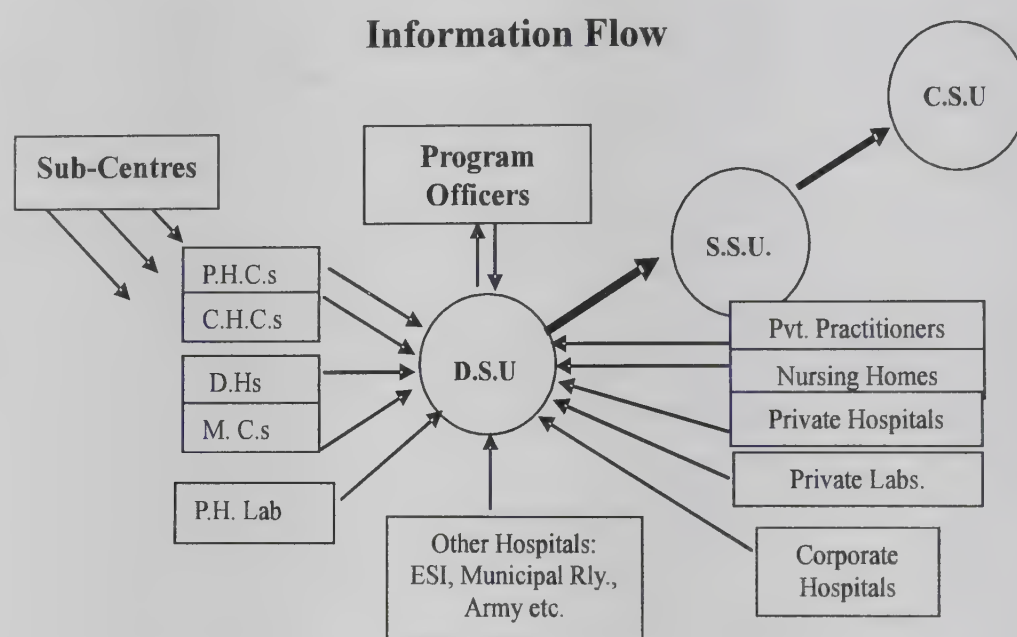
Role of the various functionaries in routine surveillance: The cases that have been detected and recorded need to be compiled and transmitted to the next level on a regular basis. This should be done every Monday from each type of reporting unit. Reports from subcentres, PHC/ CHC, Medical Colleges, Private Hospitals etc should be sent to the district surveillance unit of each district on Monday of every week. All reporting centers will provide zero reporting if no cases were detected.

- ▶ Health worker as and when he/ she detects additional cases during routine field visits will add the information to the register for syndromic surveillance and report the cases seen in the week of reporting using form S. This form will be filled in triplicate: one copy will be retained by the Health Worker at the periphery and two copies will be sent to the MO PHC every Monday.
- ▶ The MO of PHC/ CHC will report weekly statistics recorded in form P and L on Monday to district surveillance officer by telephone, fax, e-mail or by hand. The MOs will also forward one of the two copies of form S will be retained by the MO PHC for follow-up action.
- ▶ The Sentinel Private Practitioner from rural areas will provide regular reports to MO PHC in form S. Weekly reports will reach every Monday to PHC/ CHC. If no cases are detected zero reports will be sent by all SPPS. The mode of transmission may be a letter/ fax/ telephone or direct courier.
- ▶ Medical Colleges, District Hospitals, Railway Hospitals and SPPs from urban areas will report in Form P and Form L (if there are accredited laboratories) to District Surveillance Officer at weekly intervals.

Remember to report any unusual clustering of cases or any health event causing deaths in a short span of time. Use telephone, fax, email, special messenger, police wireless- any methods to report immediately. If there are no cases in that week/month, do not forget to write 'zero' in the relevant row. The designation of the person responsible for data compilation and transmission at each level is identified below:

PHC	-	Pharmacist/ Male Nurse
CHC	-	Computer Operator/ Pharmacists
SPPs	-	Medical Officer
District Hospital	-	Computer/ Pharmacists
Medical Colleges	-	Statistical Officer
Laboratory	-	MO in charge/ Laboratory Technician

The quality of the data filled up by the health staff needs to be checked by a senior staff and only then transmitted. For all forms, the original has to be sent to the higher level while a copy to be maintained at the reporting unit form where it originated.



- ▶ Do not set up a parallel system of disease surveillance.
- ▶ District is the hub of activities for surveillance and response
- ▶ Feedback from all levels motivates and sustains the surveillance system.

Analysis of data : Analyse and interpret the data received within 24 hours and Compare analysis results with thresholds to identify outbreaks While collection of good quality data is important for a surveillance Program, analysis and interpretation of this data is of equal significance. Without this, all the hard work put in by the workers becomes meaningless. Data Analysis provides three important outcomes:

- ▶ Count by reporting unit helps in identifying outbreaks or potential outbreaks.
- ▶ During an outbreak, analysis of data identifies the most appropriate and timely control measures. Analysis in terms of person, time and place will be

able to focus the intervention; e.g. analysis of a suspected and confirmed cases of Malaria will be able to identify the affected families and the cause of the outbreak so that corrective action can be targeted at this cause.

- Analysis of routine data provides information for predicting changes of disease rates over time and enables appropriate action.

While, analysis should ideally be done at all level from the periphery upwards, the main people responsible for analysis is the District Surveillance Officer. The PHC M.O. will limit analysis to detection of outbreaks and anticipating seasonal trends. While the District Surveillance Officer would be doing all of the above, he/she will also be monitoring the effectiveness and efficiency of the health services.

Frequency of analysis and summary reports

Summary Reports	Daily	Weekly	Monthly	Yearly
Timeliness and completeness of reports		✓	✓	✓
Description by time, place and person	✓	✓	✓	✓
Trends over time	✓	✓	✓	✓
Checking for threshold levels			✓	✓

Feed back : It essential to maintain and support the peripheral staff. Feed back report should be sent regularly once a month even when there are no epidemics in the area. The data should represent trends over time in the district. Feed back report should also be provided on the quality of data submitted to the district surveillance officer as given below.

Completeness and Timeliness of data : It is a reflection on the performance of the reporting units. DSU should maintain a list of the reporting units and disseminate to all concerned MOs. The MO monitors which of the reporting units are sending complete reports on time. A report from a reporting unit is said to be in time, if it reaches the designated level within the prescribed time period. If it reaches, after, then the report is considered to be late (and of lesser public health use). The timeliness of a reporting unit can be calculated by assessing how many of its expected reports have come in time. A report is said to be complete if all the reporting units within its catchments area has submitted the reports in time. If 8 out of 10 only have submitted, then the report is said to be incomplete (or 80% complete).

Timeliness and completeness of reporting units is a proxy indicator of the alertness of the surveillance system. An alert system will have timeliness and

completeness approaching 100%. Also completeness of reporting units gives one an idea about the reliability of the data; for example, if completeness of reports is only 50%, then the incidence of disease would be under reported by 50%. So the incidence rates and CFRs need to be read in conjunction with the completeness reports.

Interpretation of the Report

Grade	Scenario	Interpretation
A	Reporting unit is timely and complete	An ideal scenario, everything is working well
B	Reporting unit is timely, but regularly incomplete	The MO has understood the importance of reporting on time. But there are some missing column. MO has to find out what the problem is.
C	Reporting unit is late, but reports are complete	The MO has not understood the importance of reporting on time. He is probably waiting for all the reporting units under his jurisdiction to report before submitting his report. He needs to be impressed about the significance of timely reporting.
D	Reporting unit is late and the reports are incomplete.	Major problem in this reporting unit- neither the MO I/C nor the MOs of the reporting units have understood the importance of surveillance and timely data.

Cont,...

Summary of Flow of Information

Procedure for reporting by various functionaries at various levels

From	To	Functionary	Frequency	Source/ Forms	Method of transmission
Sub center, village volunteers, non- formal providers	PHC	Health Workers/ Volunteer	Weekly	Daily register Form S	Form S will be filled weekly. A copy to be retained by the peripheral worker. One will be retained at the PHC and the original will be sent to the District Surveillance Officer.
PHC/ CHC	District Surveillance Officer	MO/ Pharmacist	Weekly	From OP/IP register to Form P and Form L1	Form P and L 1 to be sent from PHC/ CHC to District surveillance officer preferably by Electronic method so that information is compiled at the DSO without delay. The reporting unit will retain a copy of the forms.
SPPs (both rural and urban)	District Surveillance Officer	MO/ Pharmacist	Weekly	From OP/IP register to Forms and Form P (S from non- formal providers, P from registered practitioners)	The i nformation is sent to the District Surveillance officer through the MOs of PHCs (from the rural practitioners) or by E - mail, courier or by a specific method from the urban areas.
Urban dispensary	District Surveillance Officer	MO/ Pharmacist	Weekly	From O P/IP register to Form P	The information is transmitted manually once week on Monday.
District hospital/ Medical Colleges/ NGO hospitals Corporation Hospital	District Surveillance Officer	MO/ Nurse/ Pharmacist/ statistical officer	Weekly	From OP/IP register to Form P Laboratory confirmed list will be sent separately in Form L2/L3	The compiled list of all cases will be sent to District surveillance officer preferably by Electronic method so that information is compiled at the DSO without delay.

Laboratory Network at District Level

From	To	Functionary	Frequency	Source/ Forms	Method of transmission
Sentinel Private labs	District Surveillance Officer	Nodal lab technician	Weekly	From Lab register to Form L2	Any available method of communication may be used. Telephone, fax, courier
Medical College Laboratory	District Surveillance Officer	Microbiologist I/C Nodal lab technician	Weekly	From the lab registers to Form L 3	Electronic communication, Telephone, Fax, E-Mail , IDSP network
District Public Health Laboratory	District Surveillance Officer	Officer in charge of District Lab	Weekly	Summary format to be completed at District public health laboratory. Case based reports for Quality assurance tests	District IDSP Computer network so that feed back form DPHL is quickly available for case management at the reporting units
District Public Health Laboratory	All reporting units	Officer in charge of District Lab	As early as possible	Case based reports for case management	Through District Computer network so that feed back from DPHL is quickly available for case management at the reporting units.

Summary : Outbreak Investigations and Response

Reporting an Outbreak:

At the PHC and CHC level, the MO In-charge will be the nodal officer who will be responsible to investigate suspected/ impending/ actual outbreaks. The fastest routine of information available should be used e.g. Telephone, E-mail, Fax or through computer.

i) The Rapid Response Teams (RRT): The team will consist of the Epidemiologist, a Clinician and one Microbiologist. They are individuals who are normally performing their usual roles, but in the event of an outbreak come

together to undertake a special function and should work in close coordination with local health staff who are primarily responsible for implementing control measures. The names, address and telephone numbers of RRT members should be available with the concerned authorities at all the time.

ii) *Epidemic preparedness:*

- ▶ Formation of the RRT
- ▶ Training of the RRT
- ▶ Regular review of the data
- ▶ Alertness during know 'outbreak seasons'
- ▶ Identifying 'outbreak prone areas'
- ▶ Ensuring that these regions have the necessary drugs and materials (including transport media) prior to the 'outbreak season'
- ▶ Identifying and strengthening the appropriate labs
- ▶ Designating vehicles or means of transport for outbreak investigation
- ▶ Ensuring communication channels like telephone are in working condition.

If there is an evidence of outbreak, RRT should be merited for further necessary action.

Step-1 Verification of the outbreak : Fastest method of verification of an outbreak is to contact Medical Officer of the nearest location telephonically to check and report, if:-

- ▶ If there is an abnormal increase in the number of cases or
- ▶ If there is a clustering of cases or
- ▶ If the cases are epidemiologically linked or
- ▶ If some trigger events have occurred or
- ▶ If many deaths have occurred

Step-2 Sending the RRT:

RRT should be immediately formed with readily available resources. Vehicles, drugs, reagents etc should be made available. So that they can proceed immediately to perform medical examination and laboratory investigation to establish diagnosis. They will also undertake epidemiological investigations simultaneously and recommend suitable control measures which can be taken up by local health staff. If the epidemic remains unabated than further investigation like case-control studies may have to be imitated. The RRT shall prepare investigative report and make follow-up visits if required.

Step-3 Monitoring the situation

- ▶ Local health officials shall monitor following aspects on a daily basis and report of RRT and authorities at district and state level.
- ▶ The trends in the cases and deaths.
- ▶ The containment measures that are being implemented
- ▶ Drugs/ vaccine stock
- ▶ Logistic issues-communications, vehicles.
- ▶ Community involvement
- ▶ Media response

Step-4 Declaring the outbreak to be over

The DSO should declare the outbreak to be over only when there have been no new cases for a period of 2 incubation periods since the onset of the last case. This implies that a very active case search should continue during this period to ensure that cases are not missed.

Step-5 Review of the final report

The DSO should receive the final report from the MO PHC/ CHC within 10 days of the outbreak being declared to be over. The Surveillance committee should review the report basically to understand why the outbreak occurred. Based on this review, the Committee should make recommendations- immediate and medium term so that similar outbreaks do not occur.

Response to an outbreak

Even as the outbreak is detected, and is being investigated, control measures need to be instituted. These may be divided into

General - Till the specific source and route of transmission is identified. For example, if one is suspecting water borne disease, then one should start a campaign requesting people to use safe drinking water.

Specific- Depending on the causative agent. The broad steps would include

- ▶ Identification and nullification of the source of the outbreak e.g. chlorinating wells.
- ▶ Minimizing transmission to prevent further exposure e.g. vector control
- ▶ Protection of the host e.g. immunization or chemoprophylaxis.
- ▶ Effective case management.

Any outbreak can be effectively controlled only when enough manpower is

provided; sufficient drugs and equipment is supplied in time; vehicles and mobility is arranged in time; 24 hour communications facilities are kept in fact; IEC material is disseminated logically and media is taken in confidence to propagate message rationally.

Issues to be attended in field surveillance

Typhoid	<p>More than 30 cases of prolonged fever a week from the entire PHC or 5 or more case per week from 1 sub-center.</p> <p>More than 2 cases from a single village/ urban ward with 1000 population</p>	<p>Verify the information from ANM</p> <p>Confirmation of the outbreak</p> <p>Active search of cases with standard case definition</p> <p>Stool sample collection</p> <p>Standard case management</p> <p>Ensure safe water supply</p> <p>Inform district authority and ask for help SOS.</p> <p>IEC.</p> <p>Documentation.</p> <p>Ensure buffer stock.</p> <p>Blood culture for S typhi</p>
Viral hepatitis	<p>Clustering of cases from a particular village/ urban ward where more than 2 cases of jaundice in different households</p> <p>Or</p> <p>More than 10 cases per PHC per week.</p>	<p>Clinical verification</p> <p>Refer the case to PHC</p> <p>Active Search of cases.</p> <p>Ensure Safe water supply</p> <p>Serological investigation</p> <p>Active search for 2nd/ 3rd trimester cases with jaundice and keep them under observation with referral to district hospital SOS.</p> <p>Investigation of water</p> <p>Treatment Plant/ pipeline</p> <p>Leakages.</p>
Measles	<p>A single case of probable measles from a tribal or remote area two or more cases with fever with rash</p>	<p>Verify the case through clinical manifestation.</p> <p>Send samples for laboratory testing.</p> <p>Standard case management</p> <p>Ring vaccination</p> <p>IEC</p> <p>Vitamin A</p>
Japanese Encephalitis	<p>Even a single case of probable JE or</p> <p>2 cases with fever with altered consciousness/ seizures.</p>	<p>Verify the information</p> <p>Clinical confirmation</p> <p>Standard case management</p> <p>Active search of cases with standard case definition</p> <p>Vector surveillance and control</p> <p>IEC</p> <p>Subsequently inform to higher authority</p> <p>Isolation of virus</p> <p>diagnosis. Referral of serious cases to district hospital</p>

DF/DHF	<p>Even a single case of suspected DHF from a community</p> <p>Rising number of fever cases for previous 3 weeks</p>	<p>Verify the information</p> <p>Suspect if clustering of fever cases with M.P. negative slides are found.</p> <p>Confirmation of outbreak.</p> <p>Standard case management</p> <p>Active search of cases with standard case definition</p> <p>House-to-house Vector surveillance for A.. Egypti/ Larvae.</p> <p>Fogging/ spraying if necessary</p> <p>Inform the DHO</p> <p>IEC</p> <p>Empty the coolers, vessels and keep them dry for 24 hours at least once in a week.</p> <p>Remove garbage. (Containers etc.)</p> <p>Laboratory confirmation</p>
Malaria	<p>Even single case is found malaria +ve in an area where malaria was not present for minimum three months.</p> <p>Or</p> <p>SPR rise more than double over last three months. Or</p> <p>States will have to set trigger value based on endemicity of malaria.</p>	<p>Mass survey for fever cases</p> <p>Microscopic examination within 24 hours</p> <p>Start CRT to all fever cases/ all contacts of +ve cases and all migratory population. (In case of single PF case of indigenous origin is found)</p> <p>Focal spraying with synthetic parathroid</p> <p>Fogging daily X 3 days followed by biweekly for 3 weeks</p> <p>Larvicidal application</p> <p>Elimination of mosquitogenic places by tempting of water tables, land filling, chanalizing the drains</p> <p>Activate DDC/ FTD</p> <p>Involve local bodies and community by IEC</p> <p>Daily surveillance for 3 to 4 weeks</p>
Unusual syndromes causing death or hospital admission	<p>Hospitalization or death of minimum two cases of similar illness from same geographical area.</p>	<p>Verification of the rumor.</p> <p>Clinical verification of cases</p> <p>Basic life support and emergency medical care</p> <p>Refer to appropriate hospital if necessary</p> <p>Active search of cases</p> <p>Autopsy and preservation of body fluid and tissues of vital organs for laboratory diagnosis</p> <p>IEC to avoid panic</p> <p>Reporting to the higher authority.</p>

Syndrome	Trigger event	Response
Acute watery stools	A single case of severe dehydration/ death in a patient > 5 years of age with diarrhea. More than 10 houses having at least one cases of loose stools irrespective of age per village or an urban ward	<ol style="list-style-type: none"> 1. Treat with appropriate antibiotics. 2. Treat with ORS 3. Refer to PHC if dehydration is severe. 4. Inform MO PHC 5. Collect water samples and send to PHC for analysis. 6. OT testing 7. Check TCL stock (bleaching powder) 8. Train the local person about chlorination of water. 9. IEC for Community awareness about safe water and personal hygiene.
a) Fever < 7days duration (Only fever)	5 cases in 1000 population	<ol style="list-style-type: none"> 1. Slides for MP with presumptive/ RT for malaria 2. Inform MO PHC 3. IEC for community awareness
b) With rash (Measles/ Dengue)	Two similar cases in a village (1000 population)	<ol style="list-style-type: none"> 1. Collect slid for MP 2. Refer the case to PHC 3. Inform MO PHC 4. Give vitamin A 5. Give paracetamol 6. Check immunisation 7. Surveillance for Aedes egypti Larvae in the house <ol style="list-style-type: none"> (a) Containers (b) Coolers, etc
c) Altered consciousness	Two cases of fever with altered consciousness in the village/ 1000 population	<ol style="list-style-type: none"> 1. Collect slide for MP 2. Refer the case to CHC/ DH 3. Antipyretics 4. Inform to PHC 5. IEC
d) Fever with bleeding	Two cases fever with bleeding in a village or 1000 population	<ol style="list-style-type: none"> 1. Refer the case to CHC/ DH 2. Inform to PHC 3. IEC
Fever with convulsions	Two cases fever with bleeding in a village or 1000 population	<ol style="list-style-type: none"> 1. Refer the case to CHC/ DH 2. Inform to PHC 3. IEC

Fever more than 7 days	More than 2 cases in a village or 1000 population	<ol style="list-style-type: none"> 1. Give paracetamol 2. Collect slide for MP 3. Give anti malarial treatment.* 4. Inform and refer to PHC for treatment 5. OT testing of drinking water 6. Collect water sample and send it to PHC for onward transmission 7. Check TCL stock 8. Train local person about water Chlorination 9. Community awareness
Jaundice	More than 2 cases in a village or 1000 population	<ol style="list-style-type: none"> 1. Refer to PHC 2. Inform MO PHC 3. Search and refer antenatal cases with jaundice in 2nd/3rd trimester. 4. Collect water samples for analysis and send it to PHC 5. OT testing 5, OT testing of drinking water. 6. Collect water sample and send it to PHC for onward transmission 7. Check TCL stock 8. Train local person about water Chlorination 9. Community awareness about safe water and Personal hygiene.
Unusual event	More than 2 deaths or hospitalization	<ol style="list-style-type: none"> 1. Inform MO PHC 2. Community awareness

Endemic Fluorosis in Rajasthan

Shiv Chandra Mathur

Fluorosis is caused by intake of excess fluoride. It's high prevalence in different states of India is known for last six decades. Rajasthan Voluntary Health Association compiled a document on fluoride and fluorosis in 1994, according to which the then population of 2.6 million in 2433 villages of the state has been consuming water with more than optimum limit. RVHA reported fluoride distribution in the villages as follows:

F.(ppm)	No. affected villages
1.2-2.9	1467
3.0-4.9	668
5.0-9.9	255
>-10	43
Total	2433

South-east half of Rajasthan is traversed by hill ranges of Aravali. The geological strata underneath these hills is rich minerals. In fact this richness of minerals inside earth has extended even in a large area of desert in north-west of the state. High fluoride in the groundwater of Rajasthan is due to fluoride mineralization granites, mica rich sand and other crystalline rock, like biotite, apatite and cryolite. Problem areas in the twenty districts of this state is as follows:

District	Villages in blocks/ tehsils
Ajmer	Kekri, Kishaangarh
Alwar	Laxmangarh and Rajgarh
Baran	Anta
Barmer	Balotra, Chohtan and Shiv
Bikaner	Bikaner and Kolayat
Chittorgarh	Begi Chittaur and Rashind
Churu	Ratangarh and Sujangarh
Dholpur	Bari and Dholpur
Bhilwara	Asind, Banera, Mandel, Jahajpur and Shahpura

Dungarpur	Aspur, Dungarpur and Sagwara
Jaipur	Chaksu, Dudu, Phagi and Sanganer
Jodhpur	Bilads and Phalodi
Pali	Bali and Pali
Rajsamand	Bhim and Reogarh
Sirohi	Pindwara and Reodar
Udaipur	Sarada and Salumbar
Jalore	Ahore, Bhinmal and Sanchore
Jhunjhunu	Alisar, Khetri and Jhunjhnu
Jhalawar	Jharalpatan and Jhalawar
Nagour	Didwana, Degana and Makrana

Epidemiological Triad

Agent: Fluoride is the primary causative agent, the excess intake of which results in fluorosis. Shiv Chandra (1980) first of all attempted in this state to determine the optimal fluoride intake. When fluorosis was included on the agenda of National Technology Mission, it was assumed that interventions to reduce fluoride in water would be introduced in every source with F values above 1.5 mg per liter (ppm). The pH in terms of high alkalinity promotes the action of fluoride. In many areas of Rajasthan water is alkaline leading to more fluorosis. The calcium in the diet reduces the toxicity of fluoride. Similarly hard waters rich in calcium lowers the toxicity of fluoride. Consumption of fresh fruits and diet rich in ascorbic acid reduces the effect of fluoride. Trace elements like molybdenum have also found to increase the prevalence of fluorosis in endemic zones of Andhra Pradesh. Aluminum is also said to enhance the toxicity of fluoride.

Host: Fluorosis in endemic zones is seen from childhood. While prevalence of dental fluorosis is high in school going children, the occurrence of skeletal fluorosis is high in adults in third and fourth decade of life. Males suffer more than females due to intake of high fluoride on sustained basis from the same source. Migration to low fluoride area particularly in females keep the prevalence in them at low level. Fluorosis as an occupational health problem has been observed in mines where aluminum ore are drawn (in Gujarat) and in aluminum factories (in Eastern Uttar Pradesh). The disease has a high prevalence in illiterates.

Environment: Since the major source of fluoride is drinking water, all factors which increases the intake of drinking water promote the incidence of fluorosis. It includes low rainfall, low humidity and high annual mean temperature. High water use and recharge combined with fluoride rich nature of sub-soil rocks inside earth enhance the incidence of fluorosis. Vegetation in the fluorotic belts is

also high in fluoride, thus conception of the same increases the incidence of the disease. Use of fluoridated tooth paste particularly in children enhances the incidence of fluorosis.

Clinical Picture

Dental Fluorosis: Dental fluorosis is prevalent in children who are born and brought up in an endemic area for fluorosis. Dental fluorosis can occur in milk-teeth and permanent teeth. Discoloration due to excess fluoride intake will be visible to naked eye. It is characterized by:

Symptoms

- ▶ Glistening, white teeth-become dull and lose the shine, yellow-white spots appear on the surface of teeth.
- ▶ Yellow-white discoloration turns brown and presents itself in horizontal streaks or spots on the enamel surface. The yellow discoloration near the gums is due to dirty teeth.
- ▶ The brown streaks at the tip of the teeth indicate that the child has been exposed to high fluoride either through food or water or both, upto the age of 2 years.
- ▶ The brown streaks, if in the middle of the teeth indicate that the child has been exposed to high fluoride in food or water or both from the age of 4 years upto 6 years and after.
- ▶ In late stages the whole teeth may become black. They will be pitted or perforated and may even get chipped off.
- ▶ Dental fluorosis is not only a cosmetic problem but also a social problems.
- ▶ Loss of teeth at an early age (edentate).

Skeletal Fluorosis : It affects young children as well as older individuals. Fluoride can also damage a fetus-if the mother consumes water/ food with high concentration of fluoride during pregnancy/ breast-feeding. Abortions, still births and birth of deformed children are common in endemic areas. The common manifestation includes:

- ▶ Severe pain and stiffness in the back-bone.
- ▶ Severe pain and stiffness in the joints.
- ▶ Severe pain and rigidity in the hip region (pelvic/girdle)
- ▶ X-ray: Increased girth/ thickening and density of bone. In some patients Osteomalacia type changes are seen due to calcium deficiency.

- ▶ Constriction of vertebral canal and intervertebral foramen results in pressure on nerves which leads to paralysis.

How to test the above complaints : Following simple tests are carried out to assess whether the joints are affected or not.

- ▶ The investigator may ask the subjects to lift a coin from floor without bending knee or hip. A fluorotic person will not be able to lift without flexing the large joints of lower extremities.
- ▶ The individual is made to touch the chest with the chin. If there is pain or stiffness in the neck, this exercise will not be possible. A positive test is indicative of fluorosis.
- ▶ The individual is made to stretch the arms sideways, fold the arm and try to touch the back of head. If there is pain or stiffness in the joints and backbone, this exercise will not be possible indicating presence of fluorosis.

If these three tests are found to be positive in more than 20 percent population, it is indicative of the endemicity of problem.

Non-Skeletal Fluorosis : It is a wrong notion that fluoride will only affect bone and teeth. When consumed in excess, fluoride can cause several other ailments viz.

- ▶ Gastro-intestinal problems : Acute abdominal pain, diarrhoea, constipation, blood in stools, bloated feeling (gas), tenderness in stomach feeling of nausea.
- ▶ Neurological Manifestations: Nervousness, depression, tingling sensation in fingers and toes, excessive thirst and tendency to urinate frequently (polydysia and polyuria).
- ▶ Muscular manifestations: muscle weakness, stiffness, pain in the muscle and loss of muscle power.
- ▶ Allergic Manifestations: very painful skin rashes, which are perivascular inflammation; prevalent in women and children; pinkish red or bluish-red; round or oval shaped spots on the skin that fade and clear up in 7-10 days.
- ▶ Urinary Tract Manifestations: Urine may be much less in volume; yellow-red in colour and itching in the pubic region.
- ▶ Headache
- ▶ Ligaments and blood vessels calcify and may show-up in radiographs as chalky white radio-opaque shadows.

It should not be misunderstood that the above mentioned complaints are

always due to fluoride toxicity. Fluoride is one of the factors which can cause such manifestations.

Prevention and Control :

Although Fluorosis is untreatable, but it can be easily prevented. If it is dental fluorosis, masking of the ugly looking brown-black teeth is possible either by capping, bleaching or by laminated veneering. Preventive measures include:

- ▶ If the water has fluoride more than 1.00 ppm, do not use it for cooking and drinking.
- ▶ Expectant/ lactating mothers are advised to use defluoridated water to have a healthy baby.
- ▶ If any of the symptoms of fluorosis is detected, avoid the major source of fluoride intake.
- ▶ Intake of Vitamin C in large amount is advisable. Vitamin C rich food items should be consumed.
- ▶ Diet should have adequate calcium. Drink more milk and consume calcium rich vegetables.
- ▶ Avoid all possible source(s) of high fluoride containing items viz. water, food drugs and toothpaste.
- ▶ Pain in the back, hip or joints should not be dismissed as casual, hospital intervention should be sought.

Defluoridation : The Precipitation Methods are commonly used for defluoridation.

Lime Treatment: Lime treatment, routinely used for hardness removal, can also remove fluoride as a side reaction provided raw water is having high magnesium hardness. Mechanism of removal of fluoride by this process is due to its adsorption on Magnesium hydroxide flocs. 45-65 mg/ l magnesium ions are needed to remove one mg fluoride. Further, caustic alkalinity of 30 mg/ l is to be maintained for magnesium hydroxide to be precipitated. Such high magnesium concentration is rather rare in raw water sources. High pH of the treated water as well as the requirement of high magnesium hardness limits its application for drinking water.

Alum Coagulation: Alum addition results in the removal of fluoride. However, high alum doses are required for removing fluoride as compared to the doses used for turbidity removal, 250 mg/ l was required to reduce the fluoride concentration of ground water from 3.6 to 1.5 mg/l. Reports from different

researchers varied considerably regarding the dosage, probably due to variation in test conditions such as raw water characteristics, mixing and pH. Although alum treatment for fluoride removal was one of the first methods to be reported, it is not very popular for drinking water treatment in developed countries. Large amount of sludge production, decrease in pH in the absence of adequate alkalinity are the major limitations of this method.

Nalgonda Technique: This technology was developed by NEERI. It is an extremely popular method for de-fluoridation of drinking water. This technique comprises the addition in sequences of lime, bleaching powder and filter alum in the fluoride water followed by coagulation, sedimentation and filtration. Lime is added prior to alum to hasten the sludge settling. Fluoride removal is probably due to the formation of polyhydroxy aluminum complexes with fluoride and their adsorption into polymeric aluminum hydroxides. Alum doses required depends on fluoride concentration and the alkalinity of raw water. Doses required for raw water containing different fluoride and alkalinity levels so as to achieve permissible levels of fluoride are given in following table.

Alum (ml) to be added to 40 liter water to obtain optimum F level

F in ppm	Test water Alkalinity, mg CaCo ₃ /l							
1	125	200	300	400	500	600	800	1000
2	60	90	110	125	140	160	190	210
3	90	120	140	160	205	210	235	310
4		160	165	190	225	240	275	375
5			205	240	275	290	335	405
6			245	285	315	375	425	485
8					395	450	520	570
10							605	570

This technology is simple and economical. It has been used successfully at domestic as well as the community levels. A hand pump attachable defluoridation unit based on this technology, which involves only alum addition, was developed and tried at many places, but the experience with the plant installed in various parts of the country has not been very encouraging. Some of the limitation of this method are: large volume of sludge production, which need safe disposal, daily addition of chemicals for the household units, proper adherence to the procedure described such as thorough mixing, settling time etc. Alum dose to be added is dependent on the fluoride concentration in raw water, which can vary significantly depending on the season. Hence, regular

monitoring of the raw water characteristics has to be carried out. If proper procedure is not followed, hydrolysis of aluminum salts may not be complete resulting in the presence of aluminum ions in treated water.

Most of these problems can be taken care at the community level de-fluoridation units from which treated water can be supplied through distribution system to the consumers. Some of these installed units are however not operated mainly due to frequent power shut / down.

Further Reading

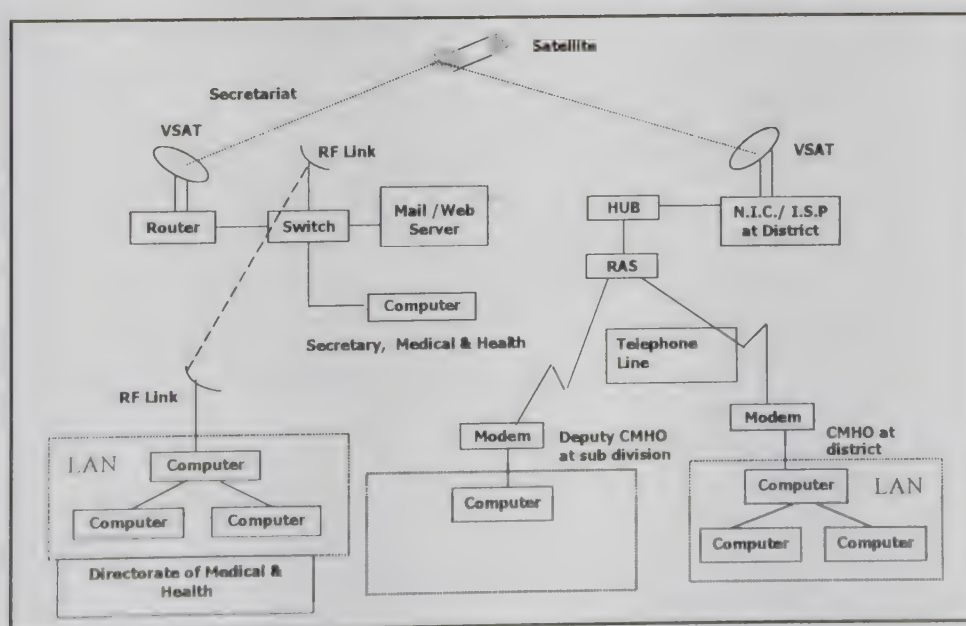
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Computerization of Public Health Management Information System in Rajasthan

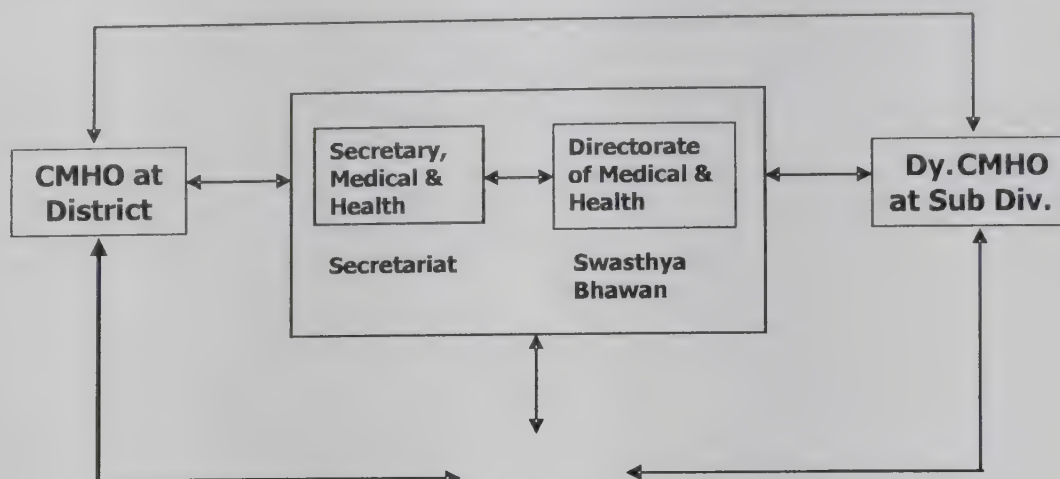
Adesh Chaturvedi

The Government of Rajasthan planned to harness the potential of information technology for efficient and cost-effective management of health programs in Rajasthan. Under this computerization of entire reporting process has been undertaken to substantially improve the efficiency. This initiative was started with financial support from European Commissions' Sector Investment Program and technical expertise of national informatics centre (NIC), Rajasthan. The aim of the project was to facilitate reliable and cost effective mechanism for better decision making, monitoring and efficient service delivery. Strengthening of health Information Management System entailed strengthening at three levels. At the first level, a central server room was set up in the Directorate and was connected to the computers stationed in the various sections of the Secretariat and Directorate through the high speed leased line for Internet. Along with it offices of the 6 Joint Directors, all the Chief Medical and Health Officers and Reproductive and Child Health Officers were provided with computers and connected to the central server. Over 300 computers were established and used under the computerization across the State.

Communication links in Rajasthan's Health Sector:



Levels after the connectivity in the Department of Medical Health and Family Welfare



Web based Health Management Information System was developed and implemented at the second level. 19 software packages were developed and named as HEALING. They are as follows:-

- Eligible Couple Survey
- Disease Surveillance
- Malaria Monitoring
- Drug Control
- Water Disinfection Monitoring
- Disease Outbreak
- Reference Monitoring
- Public Grievances
- Redressal Monitoring
- AFP Surveillance
- Subcentres Directory
- Cold Chain Monitoring
- RCH Program Monitoring
- Tours, Events & Meetings Monitoring
- Budget Monitoring
- Sanjivani Health Camps Monitoring
- Routine Immunization Monitoring
- Pulse Polio Campaign Monitoring
- File Tracking & Monitoring

The software has all the features of analysis of the data for generating the required information. The person concerned, at the district level, has to insert the data in the prescribed web based offline formats and has to post on the website by connecting one's computers through internet. All the officers from CM&HO to Principal Secretary Health and Family Welfare have their unique user names and passwords to access the data and analyzed information for the monitoring purposes. Any officer, included in the users' list, can get the analyzed data just at one click. For an example, Information related to Malaria cases or Blood slide collection for PF under Malaria Control Programme can be monitored from the different angles i.e. (i) Comparison from the last year data; (ii) Weekly trend; (iii) Graphical distribution (iv) District wise comparison; (v) Monthly report of a district. Besides, software also illustrate the information about the users e.g. who used the software last time and when; who inserted the data and at what time and on which date.

At the third stage a team of computer professionals was developed to impart detailed training to all the district officials on the use of computers. The trained team of computer professionals is providing regular support to the Directorate in the implementation of the information system.

At the district level, almost for all the programs i.e. National Disease Control Program, RCH Program, data entry operators are in place who post the data/progress report on the website. As internet facility is not available at many CHCs, the requisite data was recorded in the existing e-based HMIS format available in the CHCs' computer. Later, the data is in turn emailed to the directorate office at Jaipur from district headquarters where internet facility is available.

At the directorate level, data operators are engaged to monitor the data flow (receipt of progress report from the district regularly) and put forward the collected information to the officer concerned. Many officers themselves visit the reports on the computer directly.

The HMIS was linked to the website www.rajmedicalraj.nic.in. This website is for internal use of the officers of the department. In addition a web site of the department - <http://rajswasthya.nic.in> has been developed. The website includes information and data pertaining to health status of the state. A portal has also been developed for grievance redressal. The site was launched by the Mrs. Vasundhara Raje, Chief Minister, Rajasthan. The website can be accessed by anyone; anyone can gather information, make suggestions and register complaints on the website. An exclusive website was developed for National

Rural Health Mission (<http://nrhmrajasthan.nic.in>) and was linked with the department's website. A comprehensive software is also being developed for NRHM.

The HMIS is being used by the districts to send the requisite information to directorate of health services on regular basis. The Central computer cell established in the directorate of health & medial services, where in monitoring is being done through reports collected via internet in the prescribed formats. At the district headquarters training is being imparted through video conferencing and addressing the problems. Not only the regular reporting but reporting of the information and data of the mega health camps i.e. sanjeevani camps are being made available through internet without delay.

The advantages of computerized HMIS systems are many i.e. it's almost Paper less and the information from the district can reach faster to the state headquarter. It is easy to store the information. The e-system will facilitate better monitoring and management of data on public health care delivery system. Since data is uploaded from the source one time only and then is not inserted at any other place into computer by other persons, the probability of human error becomes very low.

Although, the computerization has been done very systematically and efficiently, yet there are miles to go to make it a success at every level. Under this system the feedback mechanism needs to be in-built into the website (state to district and district to health centres) and needs to be strengthened. Regular updating of information is important for smooth functioning of this tool. Since the availability and use of computer and internet at the field level is yet to be ensured properly, the use of this computerized web based information system at all level is a challenge. The database should be used at all levels for planning the monitoring visits and in case of excellent service rewarding the institution, which requires regular attention of the supervisors by visiting the data on a regular basis. Besides, it needs further infrastructural improvement i.e. regular internet facility, maintenance and periodic training at least up to CHC level. The In-charges of PHCs and CHCs and CMHOs need to use optimally the HMIS for getting better understanding about the data and data based information. Initial hiccups will be removed when they will start using the HMIS regularly. For analyzing the data what all is required is a click by their computer mouse. Hence, they should be encouraged to use the same without delay. There should be a time bound plan to percolate down this computerized system right up to Sub Centre level. The first step would be the data entry of all the Eligible Couple Registers in the prescribed software developed for the same.

Health Management Information System in Rajasthan

J.P. Jat

Information system in Health Sector in Rajasthan till recently was suffering from various deficiencies which includes delay in information flow, non-standardization of information, ill matching of generated data to information need, over-production of information, difficult retrievability, non-utilization of the available information and poor feed-back at all level. It was being implemented in fragmented manner to cater the needs of respective programs only. To obviate this situation and to enhance the quality of information, process of integrating health management information system (HMIS) and maintenance of composite records at sub-centers and PHCs was started in the year 1993 in the state with Ministry of Health & Family Welfare-GoI, Central Bureau of Health intelligence, National Informatic System, UNFPA and WHO. We are now implementing it throughout Rajasthan. Modification and improvements were initiated in 1995 keeping in view the new strategies, aiming at more effective implementation of family welfare program, based on clients choice and community involvement. It is a matter of gratification for the State that the implementation of modified HMIS has been widely appreciated. The HMIS adopted in the state is keeping in view the CNA approach.

Organization

Health Management Information System is defined as system designed by the health department to collect and report information on health programs that allows the user to plan, evaluate and monitor the operations and the performance of the whole program. By adopting HMIS following advantages have been observed:

- ▶ It is possible to reduce the number of records and reports without loss of any vital information.
- ▶ The information so prepared is primarily useful for the workers and MOs who collect it and only then to their superiors.
- ▶ Uniform proforma throughout the State of Rajasthan.

While the system does not claim to be perfect one, yet it is felt that it has incorporated the essential requirements for managing the health services up to the district level with in-built potential for expansion to incorporate the essential requirements above the district level.

Maintenance of Records and Reports : For better appreciation of responsibilities of PHC Medical Officer in implementation of HMIS in their respective areas, a clear understanding about the records maintained at sub centre and PHCs is quite essential. Every year in the month of March/ April, the ANM/ MPW updates the Eligible Couple Survey Register through contact-cum-survey drive, visiting house to house. Immediately after survey ANM/ MPW prepares the Form “Ka” compiling and analyzing BR, DR, IMR, CPR, unmet need etc. and prepare Service Delivery Register (SDR) by classifying couples as per their service need. The table below indicates the main record reports which are to be prepared and submitted at different level.

Form No.	To be prepared by	Last date for submission	To be submitted to
Form-1: (Annual Action Plan at Sub-centre)	ANM of sub-centre	20 th April every year	Medical Officer I/c PHC
Form-2: (Annual Action Plan at PHC Level)	Medical Officer I/c PHC (aggregate from all SC with additional information of PHC)	25 th April every year	Dy. CM&HO (FW)
Form-3: (Annual Action Plan at FRU/ CHC/ Dist./Sub-Divisional Hospital)	Medical Officer I/c FRU/CHC/Sub-Divisional/ District Hospital/ Sub-distt. Hospital	25 th April every year	Dy. CM&HO (FW)
Form-4: (District Annual Action Plan)	Dy.CM&HO (aggregate of Form 2 & 3 with additional information at District level)	30 th April every year	State Govt./ Govt. of India, New Delhi through NIC Net
Form-5: (State Annual Action Plan)	State Health & Family Welfare Authority/ Demographer (aggregate of Form 4 with additional information at State level)	10 th May every year	Govt. of India, New Delhi through NIC Net
Form-6: (Monthly Performance Report at SC level/ Health Post/ Revamping Centre)	ANM/ MPW (Male)	21 st of every following month	Medical Officer I/c PHC
Form-7: (Monthly Performance Report at PHC/ Urban Dispensary)	M.O. I/c PHC (aggregated of Form 6 with additional information PHC/ Urban Dispensary)	Upto 30 th of following month	Dy.CM&HO (FW)

Form -8: Monthly Performance Report a FRU/CHC/Sub-divisional Hospital PPC/ distt. Hospital	M.O.	Upto 30 th of every following month	Dy.CM&HO (FW)
Form-9: Consolidated Monthly Report District to State/ Govt. of India, New Delhi	Dy.CM&HO (FW) (aggregate of Form 7 &8 additional information in District level)	5 th of every following month	State Health & Family Welfare Authority/ Demographer

Eligible Couples Survey (ELCO) Register : The house to house survey is not an absolutely a new feature. For updating the Eligible Couple Survey Register or fresh preparation of such registers at sub-centre, house to house visit by the ANM/ MPW is required to collect relevant information relating to particulars of family members in the reproductive age group and the children. This register is for maintaining village-wise record of all eligible couples for a period of five years, beginning from 1995. This ELCO Register can record information of around 250 eligible couples. The formats of ELCO Register is of 44 coloumns. The ELCO Register is up-dated every year in the month of March/ April through contact-cum-survey drive. It is helpful in assessing the clients choice, the demographic changes over a period and provide leads for better implementation. ELCO Register is maintained by ANM/ MPW at sub-centre under the supportive supervision of Health Assistant (Male/ Female). It is very important document and it is all the more essential that work done by field workers during the survey is concurrently supervised by the PHC Medical Officers to see the functions, completeness and correctness.

The format of ELCO Register has been developed in a very simple language. The first 10 columns of 44 column proforma is related to general information of the E.C., 11 to 16 columns are related to EC if she undergoes a delivery in last calendar year, if not so these columns are kept blank. The last calendar year means the year preceding to survey; thus if the survey is done in March 2007, the last calendar year shall be from 1st January 2006 to 31st December 2006. The columns 17 & 18 ELCO registers are crucial columns as the infant mortality rate is calculated form these. As is evident from experience that Health Workers & Health Assistants has still confusion in recording the entry in these columns. The following two conditions must be fulfilled to make the entry in column 17 & 18 else they shall be kept blank:

- A child dies in last calendar year.
- The age of same child was below one year at the time of death. The year of birth is not considered i.e. this child may have born in last calendar year or the

year preceding to last calendar year. Columns 20 to 29 are related to immunization services to child less than one year. Column 31 to 37 are related to Family Planning and that 38 to 42 are related to ANC services, if former (Col. 31 to 37) are applicable the later (i.e. Col. 38 to 42) should be kept blank and vice versa.

The ELCO register must be prepared properly as it is the most essential register for successful implementation of Family Welfare Program. The following points are also important while doing survey and recording up-dated information:

- ▶ All EC of the village must be included.
- ▶ Family means member who shares a common kitchen.
- ▶ There can be more than one EC in a family.
- ▶ Many information are to be recorded in codes and code numbers are provided below the each form. The computer memory reads differently. The numeric-characters & alpha characters whichever is applicable should be recorded. The code recorded should be of within the range, if for particular item the codes applicable are 1,2,3 and 4 the workers from their own, tries to put 0, 5 or above which are not acceptable by computer.

Preparation of Form “Ka”

Immediately after completion of the survey in the first quarter of the year compiled results are to be prepared in form “Ka”. It is broadly classified into five parts. The part-I comprises of information related to birth, infant mortality and maternal mortality. Part II is related to Family Welfare information as per ELCO register, Part III is related to number of couple protected and information of method wise old users, regular users etc. of family planning. The couple protection rate is also calculated in this part. The part IV of form Ka is to know from the clients who are not using any FP method; whether they are willing to adopt FP method or not, if 'yes' which method if no reason for not accepting. Part V is comprised of two tables; in first table the ANM lists the name of children who have died in below one year of age along with the reason of death. The second table comprises the list of women died due to pregnancy/ delivery with reason thereof. Each item of all the parts of Form “Ka” is defined in a very simple way and the column number of the survey register is also indicated below each item from which the particular item are to be complied. This form is prepared by the health worker and is sent to PHC.

Service Delivery Register (S.D.R.) : The Service Delivery Register is also

maintained village wise by sub-centre workers. The periodic progress can be watched and assessed only by ensuring up-to-date maintenance of S.D.R. The service delivery register is made more simple and more informative. In SDR the clients are classified on the basis of service to be delivered to them by the Health Worker. The SDR consists of following types and number of tables for various services:

S.No.	Name of the table	Table No.
1.	Inspection comments of Inspecting authority	-
2.	Important information of the village	-
3.	Year-wise number of E.C., method wise couples protected and unmet need to family welfare services	I
4.	Age group wise number of Eligible Couples	II
5.	Parity wise number of Eligible Couples	III
6.	List of EC who do not want child and have not undergone sterilization	1
7.	List of EC wants child after one year or more and are using spacing method	2
8.	List of EC wants child after one year or more and are not using any family planning method	3
9.	List of EC having two or more children not using any method of FP and shown desire for more child by code 0 or 3 in col. 32 of survey register	4
10.	Details of services provided to pregnant women	5
11.	Immunization to children less than one year	6
12.	Immunization to children more than one year	7
13.	Birth Register	8
14.	Death Register	9
15.	Details of Malarias positive cases	10
16.	Details of patients suffering from different diseases (TB; Leprosy, Guinea worm, Blindness, Disability)	11
17.	Details of treatment to children sufferin g from different diseases and details of death:	12
	(i) Diphtheria	12 (1)
	(ii) Whooping cough	12 (2)
	(iii) Tetanus in children below one year	12 (3)
	(iv) A.F.P.	12 (4)
	(v) Measles	12 (5)
	(vi) TB	12 (6)
	(vii) Pneumonia	12 (7)
	(viii) Diarrhoea	12 (8)
	(ix) Dysentery	12 (9)
18.	Tetanus in pregnant women and other person	13
19.	Details of I.E.C. activities	14
20.	Survey of RTI/ STD	15
21.	Number of available Dais & details of their training	16

In many cases, it has been observed that most of the tables and columns of these registers have not been filled up even yet, reason being non dispensation

of the services, apathy for maintenance of records and lack of understanding. It is now imperative that these registers should be regularly scrutinized by MOs and supervisory functionaries and ensure that these SDR do reflect the services provided by the workers to the community, as also their contact level with the community and clients should be well reflected, as the contact level of service dispensation alone can ensure successful program implementation in the field. The tables I, II and III of SDR are related to number of EC, according to age and parity. The table 1 to 4 of SDR facilitates Health Worker to provide family planning services to E.Cs. and for their motivations. Table numbers 5, 6 and 7 of SDR are that of M.C.H. services. Subsequent tables in SDR are related to 'birth registrations, death registration, details of patients of different disease, tetanus in pregnant women and other persons, details of IEC activities, survey of RTI/ STD and number of available Dais and details of their training. All these tables are important for monitoring of MCH information in these tables will facilitate assessment of successful or otherwise implementation of the programs, the tables related to epidemiological aspects are helpful in timely identification and spread of diseases and working out strategies and action in time. Hence, full attention should be paid for maintaining correct information in these tables also.

The E.C. from survey register are classified according to their service need and are transferred to relevant table of SDR. After preparation of SDR it is utilized for providing services to the community; following are important points on which their may be confusion to the field workers during providing service.

- ▶ If after preparation of SDR few new ECs immigrates or identified in area, these E.Cs. should be registered in respective table of the SDR for which, service the E.C. need;
- ▶ It is not necessary that all E.Cs registered in survey register should be transferred to 'some of the table of SDR. Only those E.Cs. of survey register are transferred to SDR if a' service is to be provided to that E.C. for example a E.C. in survey register has recorded as already sterilized finds no place in SDR.
- ▶ Shuffling of E.C. from one table to another table of SDR can be done as per change of their service need.

Annual Action Plan :

For better Implementation of Health Program and for its better organization; information based annual planning at all sub centers; Primary Health Centers and District levels are prepared. The proformas of action plans to

be prepared at different level are developed in state as per-guidance provided in Community Needs Assessment (CAN) approach Manual. However necessary formats have also been arranged or modified as per requirement of Action Plan by the state authority. There is wide scope to improve the implementation action as per plan. The proformas of these Annual Action Plan are made very simple, but broadly it should be ensured that all old users of spacing method may remain regular users this year also and those ECs who have yet not undergone sterilization or not using spacing method and are in unmet need frame must be benefited either by limiting method or by spacing method.

Sub-Centre- Form-1 : After the completion of survey and at the time of preparation of Form “Ka” the sub centre annual action plan are prepared at all the sub centres in the state. The table 2.1 of Sub Centre Action Plan is compilation of village wise details of sub-centre area. All the columns of this table are almost same as already recorded in form “Ka”.

The table 2.2 concerns with probable achievements of Birth Rate, Infant Mortality Rate, Maternal Mortality Rate and Couple Protection Rate at the end of year which HW plans to achieve. This is an important table of the action plan and consists of 18 columns. The columns 6,8,9,11,12 to 16 and 18 are self-explanatory. “The ANM plans the probable achievements she expects at the end of year of BR, IMR, MMR and CPR in columns 7, 10, 13 and 17 respectively. For this find the difference between current status of any Health indicator with its target, the result would show the lacking behind the target. The difference so obtained may be divided by number of year available to achieve the target. Thus column 7, 10, 13 & 17 are estimated on the basis of current status of health indicator and its target established.

The family welfare program is being implemented throughout the country on the basis of CNA approach. Prior to 1996 the target of FP were given from top to grass-root workers. But under CNA approach the targets are assessed at grass-root level to improve the quality of implementation of family planning programs. The table 2.3 of sub-centre action plan is related to the probable achievement the worker expects in current year. This table allows the worker to assess the target of FP under CNA approach. The table is classified in four categories of E.C.:-

- ▶ E.Cs. who never want a child in the future.
- ▶ E.Cs. who do not want child at least for one year or more and not using any FP method.
- ▶ E.Cs. who are regular user up to March of current year.

- E.Cs. having more than 2 children not using any FP method and wants more child.

The worker is required to protect 80% E.C. of the unmet need of limiting method by sterilization and 20% by spacing method from 1st type of category of E.C. above, in current year. For second category of E.C. the worker is required to protect 80% E.C. of un-met need to spacing method by any of the spacing method. The worker is required to protect 100% E.C. of third category and attempts should be made so that this category may remain regular user of any of the FP method this year also. The worker is required to protect 15% of the couples from fourth category of E.C. above (which is rigid group), any of the FP method. The total of table 2.3 of different columns are done and like this the targets of S.C. area of FP are estimated. It is important to note here that out of total target of spacing method 45% should be protected through IUD. The table 3 of S.C. action plan facilitates the worker to estimate the target of MCH services in the sub-centre area. This table is broadly classification in three parts; in first part target of ANC in second part intranatal care (service during delivery) and in third part targets of PNC are estimated. The activity along with the prescribed norms are well defined in the table itself. The table 4.1 is related to actual achievement during last year and targets of current year (as per table 2, 3 of S.C. Action Plan) of sterilization, O.P. users and Nirodh users. Table 4.2 or S.C. Action Plan is to know and record other institutes working in S.C. Area. Table 5.1 and 6.1 of the Action Plan are related to availability of various supply and equipment etc. in table 7.1 the worker estimates the target of various IEC activities which he/she plan to achieve in the current year. While preparing the action plan, to ensure participation of community in the preparation of Action Plan, the following categories of people in the area should be consulted:

- Sarpanch, Pradhans, Panchayat members, etc.
- Angnawadi workers
- TBA
- Teachers
- Mahila Swasthya Sangh Members
- Opinion Leaders
- AYUSH Practitioners

PHC Level Action Plan: Form-2 :This form is required to be prepared annually by the Medical Officer incharge of the PHC to estimate Action Plan to get assessed need at PHC level. This Action Plan will be the aggregate of Form- 1

form all the sub centers under the PHC plus additional information which is specified for PHC. The preparation of plan is not only sufficient, its proper implementation is important. Community participation is crucial in implementing it. The PHC M.O. should get approve the plan in the Panchayat meeting and its monitoring must be done through holding the regular monthly meeting. As per the guidelines given CNAA Manual circulated to all the districts/ States the following steps will be taken to prepare Action Plan or assess need of Health and FW services.

Sub-Center Level Action Plan

- Step-1 During March-April the ANM/Male Health Workers are to visit households within their villages for collating relevant information on various items, eg. ANC cases to be registered, number of pregnant women to be fully immunized, requirement of family planning methods etc. In this visit ANM will also ascertain overall health care requirements of the households.
- Step-2 Information collected by ANM is to be validated as far as possible through discussions with Anaganwadi Workers, Mahila Swasthya Sangh, Panchayat members etc. and to estimate the felt need of the village accordingly.
- Step-3 A comparison of certain information with reference to birth rate of the area and achievements under various issues of previous year is to be made.
- Step-4 After the needs are assessed by consultative process, the estimates will have to be compared with the figures of earlier years as well as the estimates of pregnancies based on demographic trends.
- Step-5 For estimating current year's requirement, previous year's achievement will be the yardstick. Requirement of the coming year would be 5% to 25% higher than the achievement of the previous year.
- Step-6 If the need assessed for coming year is less than 5% (or higher than 25%) of the previous year's achievement, the assessment has to be checked.
- Step-7 Probable number of pregnancies is estimated as population of the area x birth rate of area.
- Step-8 Probable number of deliveries = probable number of pregnancies

- Step-9 Probable number Antenatal registrations = 110% of probable number of pregnancies.
- Step-10 ANC visits, TT doses, IFA administration will be estimated on the basis of antenatal registration.
- Step-11 To estimate high-risk cases, which are 15% of the estimated antenatal women, registered.
- Step-12 Anaemic cases of pregnant women-50% of Antenatal women registered.
- Step-13 To calculate expected number of live birth.
$$\text{No. of live birth} = \text{Population of the area} \times \text{Birth rate of the area}/1000.$$
- Step-14 No. of birth expected to be in high risk = 15% of estimated number of birth.
- Step-15 No. of infants to be immunized: No. of live birth No. of infants who have died during the year (calculated by IMR).
- Step-16 No. of children below 3 years of age = 8% of total population. This figure is required for estimating requirement of Vito A doses.
- Step-17 Children below 5 years of age = 13% of total population. This number is needed for estimating requirement of DT doses.

PHC level Action Plan

- Step-1 All the Sub-centre (SC) level Action Plans from all the SCs under a particular PHC will be compiled.
- Step-2 The MO incharge is to calculate the net requirement of materials, vaccines, medicines etc. taking into account the existing stock of supplies for the PHC.
- Step-3 Additional information relevant for PHC level (e.g. No. of probable MTP cases, RTI/ STI cases to be treated or referred, etc.) is to be prepared.
- Step-4 Attention is to be paid to Family Planning Services particularly to the issue of male sterilization.

Monthly Progress Report for SC/ Urban Health Post/ Revamping Centre:

- Form-6: The HW records the work done during the month and progress made up to the end of month in the sub centre area in Form-6.

A few clarifications are stated as below:

- a) Same, form will be used for furnishing monthly report relating to (a) Urban, health post and (b) Revamping Centre.
- b) 'Performance in the reporting month: work done during the month may be given.
- c) "Cumulative performance till corresponding month of last year":- likewise cumulative performance for last year upto that month should be given.
- d) "Cumulative performance till current month": Likewise cumulative
- e) "Planned performance in current year": Figures under this column may be taken from Form-1 S.C. Action Plan
- f) Filled in copies of Form-1 (Action Plan) and Form 6 (MPRs) pertaining to last year/ previous year may be kept in record of official use for filling up the forms during next year.

Monthly Report from PHC/Urban Dispensary to District: Form 7

At PHC the MPR of all the SCs, of PHC area are tabulated in the prescribed "Tabulation sheet" and monthly progress of PHC head quarter is also included. Thus for PHC Form 7 contains information aggregated of all SC, MPR (Form-6) of the 2 HC area. The columns of Form-7 are almost, same as Form-7 are almost, same as Form-6.

In HMIS the reports prepared at any level (S.C., PHC or District) are not merely for passing to higher authorities but its information are first useful for them who prepare it and then to higher authorities. Before tabulation and preparing Form-7 at PRC, the SC MPR must be scrutinized ailed the information of current month's MPR should be compared with last month's MPR to avoid any discrepancy in information. All discrepant and doubtful information must be rectified PHC level with consultation of field worker, then only it should be passed to district in Form-7.

Unmet Need : It is very commonly and widely used term, in the health sector. It can be defined as a couple desires no child or want it late and not using FP method. The unmet need is not only utilized to assess the targets but also used to judge the performance of the plan. The needs are of three types:

- i. Total Need : This is the total demand
- ii. Met Need : The part of total demand fulfilled or benefited

- iii. **Unmet Need** : The part of total demand, which could not be fulfilled or benefited i.e (i)-(ii) above.

The unmet need are calculated differently for limiting method and spacing method of family planning. It is calculated on the basis of information of ELCO register.

Unmet Need for Limiting Method : In column 31 of Survey Register a query is made "Does the woman want more child" Yes/ No. The answer 'No' of col. 31 are counted, (total demand of limiting), from the total demand of limiting, already sterilized (met need) are subtracted the rest is unmet need for limiting.

Unmet Need Spacing Method : The, total need of Spacing Method is the total of ECs who has desired no child at least for one year or more. In column 32 of survey register code 1 and code 2 are assigned to those E.C. who has desired spacing between birth of child i.e. E.C. do not want child at least one year the code 1 and code 2 of col. 32 are counted, this is the Total Need/ Demand of spacing method. From the ECs of total demand, the ECs using spacing method are counted (codes 3,4 & 5 of Col. 35) to know the met-need. Subtract met-need of spacing from total need to get unmet need of spacing method. It is important to note here that only those E.Cs. of codes 3,4 &5 of col. 35 are counted for met need who are assigned code 1 or 2 in column 32 of survey register. The unmet need for both limiting and spacing methods are required while preparing form Ka and 'Annual Action Plans'.

Monitoring : One of the primary purpose of HMIS is monitoring the performance of the program. This can be done by a simple comparison of the a comparison of performance against the expected level. Another approach to monitoring could be to compare the performance of service units within PHC. For the purpose some indicators are to be decided. Once we determine the indicators showed and their expected levels, they need to be communicated to sub center/ PRC whose performance we are going to monitor.

The basic purpose for monitoring is to identify problem areas so that necessary corrective actions may be taken. The choice of performance indicators, their expected levels of achievement and the approach to performance monitoring should all enable (a) identification of what needs attention and (b) what kind of attention is needed. The monitoring can be desk monitoring and or field monitoring. It is necessary here to discuss both good and poor performing units and to 'find out how the sub-physically going to the place of action talking to the Health Assistant, Health Workers and even the beneficiaries. A combination of desk and field monitoring would be useful.

Medical Officers working in peripheral health facilities should try to improve the collection and use of data in all spheres of their work ranging from record of morbidity in their OPD routine to all national health program. This implies that model of HMIS described here in context of RCH needs to be dilated for all national health programs. They are also advised to keep themselves in touch with circulars issued by Directorate on this subject from time to time.

Injury and Postmortem-Medicolegal Issues

P.K. Saraswat

In response to the needs expressed by Medical Officers working at peripheral health institutes in Rajasthan, chapter covering relevant points on medicolegal examination is presented at this juncture. Nevertheless it may be clarified at the outset that it is no replacement of the standard literature. It is merely to facilitate the routine work at PHC/CHC that important hints on the medicolegal issues for MOs have been included in this chapter. For all details they are advised to consult the standard text-books including the literature quoted at the end of this chapter.

Editor

Aim of this chapter is to identify various medicolegal cases; to discuss the guidelines while dealing with a medicolegal case; to describe the legal responsibilities of a doctor in a medicolegal case; and to tell about the legal consequences, if proper requirements are not fulfilled in a medicolegal case. In his/her professional practice a doctor comes across every day different cases, some of which are medicolegal in nature.

Medicolegal Cases are those cases, who come to a doctor for medical care and their body condition is as a result of commission of some offence so, they bear some legal implication.

Offence: Offence means any act or omission made punishable by the law (U/s 2-n Cr. P.C. and 40 I.P.C.). It is of two types:

Cognizable Offences: These are enlisted in the 1st schedule of Cr. P.C., for which police can arrest the accused without warrant. *Cognizable Cases* related to a cognizable offence e.g. rape, murder, sodomy, robbery; roadside accidents, criminal abortions etc.

Non Cognizable Offences: These offence are not enlisted as cognizable and for which police must be issued with a warrant of arrest by an authorized person. *NonCognizable Cases* e.g. causing simple hurt. The doctors should serve the medicolegal cases within the frame works and provisions of the laws of the land otherwise they may invite unnecessary problems for themselves.

Identification of a Medicolegal Cases : *Mechanical traumas*, including Assault; Vehicular and train accident; Fall from height; Industrial / occupation injuries;

Mine accidents; Animal bite.

Thermal injuries including Burns [Injuries due to flames, hot solid objects made up of glass or metals, X-ray, U-V rays etc.]; Scalds [Injuries by hot liquids at or above its boiling point / steam or vapours etc.].

Chemical burns; Firearms and ammunition injuries; including blast injuries; and Injury due to electricity, lightning etc.

All cases of POISONING including Suicidal or homicidal poisoning; Accidental poisoning including industrial and occupational; Alcohol intoxication; Food poisoning; and Death due to snake bite.

- ▶ All cases (Accused / Victims) of SEXUAL ASSAULTS, including natural sexual offences e.g. rape; and un-natural sexual offences e.g. sodomy; suspected (living / dead) cases of CRIMINAL ABORTIONS; unclaimed NEWLY BORN (living / dead)
- ▶ All unconscious patients (without head injury) where pathological cause for coma could not be ascertained;
- ▶ All cases relating to STARVATION including Hunger strike.
- ▶ All cases requiring AGE estimation e.g. kidnapping / abduction etc.
- ▶ Death due to anaphylaxis or drug hypersensitivity.
- ▶ Cases of death in operation theatre DURING SURGERY.
- ▶ All (living / dead) cases of VIOLENT ASPHYXIA e.g.: hanging, strangulation, drowning, suffocation etc.
- ▶ All (living / dead) cases of MEDICAL MALPRAXIS.
- ▶ Death of PRISONERS in the hospital / in the jail.
- ▶ Cases of SUDDEN / UNEXPECTED and/or SUSPICIOUS death of a person where cause of death is not apparent.

In all medicolegal cases every doctor has a two fold role, (i) Medical management and (ii) Legal responsibilities

Medical Care : The first and foremost duty of attending doctor when a medicolegal case is brought for treatment is to exercise professional and ethical responsibilities.

- ▶ While handling a medicolegal case, follow the universal procedure as also mentioned in the declaration of Geneva, 1948 (always give the utmost respect for human life whether, the person under treatment is an accuse or victim) and hence clinical management should precede the legal duties

failing which charges of negligence may be framed against the doctor. **A doctor working in a Government hospital is duty bound to treat a medicolegal case brought to the hospital though, a private practitioner has the privilege to choose the patient.** On this basis a private practitioner may refuse a medicolegal patient without showing any reason. **But in emergency condition the private practitioner / hospital should not exercise the choice for a patient hence, whatever may be the circumstance; if the condition of the patient is serious each and every doctor must administer first-aid on emergency basis.**

- ▶ A private practitioner may refer a medicolegal case to a government hospital only after administration of first aid, wherever possible and necessary.
- ▶ There is no law which prevents a private medical practitioner or private hospital from treatment of a medicolegal case if, it has a well established emergency services.
- ▶ As soon as the doctor undertakes the responsibility of treating a patient 'an implied contract' is entered between doctor and the patient. It will be the duty of the doctor to exercise reasonable care, skill, attention and knowledge while treating the medicolegal case.
- ▶ Adopt life saving procedures, do not waste precious time for elaborate description of minutiae.

At this juncture, it is worthy to draw attention of all doctors towards their pledge while seeking registration in Medical Council:-

"I solemnly pledge myself to service of humanity, Even under threat, I will not use any medical knowledge contrary to the laws of Humanity. I will maintain the utmost respect for human life from the time of conception. I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient. I will practice my profession with conscience and dignity. The health of any patient will be my first consideration.."

Legal Responsibilities

a) *Registration as medicolegal case:* All cases of trauma or other categories previously narrated, in which investigations by law enforcing agencies are required whether brought by police or someone else or comes himself must be labelled as medicolegal even if they have been brought several days after the incident. Request of the patient or the accompanying relative or friend for not labelling the case as medicolegal should not be acceded as they may try to conceal the facts due to one reason or the other. After identification of a medicolegal case it should be registered in a medicolegal register mentioning the

necessary entries including, name of the person/s who brought the case. For isolation of the medicolegal case, on the top of the Bed Head Ticket word 'M.L.C.' should be written preferably in Red. If the patient is unconscious and unidentified at least two permanent 'identification mark's should be noted on Bed Head Ticket. When identification marks are not traceable on body then, thumb impression of the patient may be taken (Left thumb in Male and Right thumb in Female).

b) Consent for examination and management: Medicolegal examination or management of a patient without consent is an assault even if it is beneficial and done in good faith. It is always better to take 'informed consent' for medicolegal examination of the case as well as for treatment. Generally the medicolegal examination is carried out after taking the written consent of the patient, the age for which is 12 years. Consent of parents or legal guardian is required if the patient is below 12 years or suffering from unsoundness of mind. In general this consent includes Inspection, Palpation, Percussion and Auscultation of case. If consent is refused, it is an absolute bar for examination. However, an accused of criminal offence may be medically examined without his consent on the request of the police under the provision of section 53 of Cr. P.C. While examining a person for identification, it should be explained to him that facts noted might go in evidence against him.

c) Consent for medicolegal examination of woman- No examination by a male medical officer of a living woman's persons shall be made without her consent and without a written order from a magistrate, addressed to the medical officer, directing him to take such examination (6.23 Rajasthan Police Rules, 1965). The word 'person' applied only to those parts of the body, to expose which would violate a woman's modesty. Whenever a male doctor examines a female an adult female attendant other than the relative or female constable (preferably female medical attendant) should be present during examination. If the woman or girl concerned refused to be examined by a male doctor the female doctor shall do medicolegal examination.

Note - Female doctor here does not mean a Gynaecologist. Any Female Medical Officer is considered competent for medicolegal work. (Ref.: U/s 54 Cr. P.C.)

- *Consent for Management* Age of consent for surgery or therapeutic procedures may or may not involving risk, done in good faith and which is not intended or known to cause death or grievous hurt is 18 years (I.P.C. 87 and 88). If a doctor fails to give the requisite information to the patient before asking for his consent to a particular operation, he may be charged for negligence.

► *Emergency doctrine* Under emergency situations where, patient is unconscious and relative or legal guardian including locoparents not-available but there is an urgency of the situation, the 'Emergency doctrine' comes into play where patient will have to be examined for medicolegal purpose and also treated without obtaining consent. Under the "Emergency doctrine" situations the law presumes that consent is deemed to have given. It protects the doctors interests giving him immunity from proceedings against him for damages, for negligence or assault (I.P.C. 92).

d) *Reporting to the Police:* The police should be informed as and when a case of trauma is registered or admitted in the hospital. Under section 39 Cr. P.C. the attending doctor is legally bound to inform to the police concerned about arrival of such medicolegal case failing which he may be prosecuted under section 176-I.P.C. In case of discharge or death or abscond or LAMA (left against medical advise) of a medicolegal case either in the casualty or in the ward / any department of the hospital, the police should again be informed.

e) *Triage and Transportation:* Triage (after the French "triager", to sort) means the allocation of injured patients into certain categories namely (I) critical (ii) immediate, (iii) urgent, (iv) deferred for action, by the emergency team. Triage is necessary both at the field as well as in the Hospital setting. The hospital receiving the patient has the duty to transfer the patient, if they are not equipped to care for that particular patient. The transfer of the patient from the emergency room into the hospital must be orderly. The attending doctor in the particular case must be incharge of the triage and priorities of treatment.

f) *Routine and Special Investigation:* Routine and special investigations should be done as far as possible before therapeutic / surgical procedures involving risk to life are undertaken.

g) *Maintenance of the Medical Record:* Medical records must be thorough, complete and record each and every significant event in the course of the care and treatment of the patient.

h) *Preservation of the Relevant Medical Documents and Evidences:* All the documents including case-sheets, X-rays, clinical pathology and chemical report and material objects like slides etc. related to the case must be preserved meticulously. Maintenance of Medicolegal Record vide No. P.16(11)ME/Gr.I/97 dated 1.11.2000 Govt. of Rajasthan, Department of Medical & Health (Gr. I), Jaipur, requires a record to be preserved for fifty years.

i) *Referring a MLC to higher center:* Some times a medicolegal case requires reference to higher center for management. In such cases while referring a MLC

always mention clearly on the reference letter, the followings:

- i. Whether medicolegal examination has been done or not. As a routine (just to escape) medicolegal cases shall not be referred to higher centers. If medicolegal examination has not been done then mention the reason for it.
- ii. Marks of identification
- iii. Mention about investigations already done and requirement for any other investigation available at higher center.

Note: If X-ray machine is available at a Dispensary / C.H.C. / the case should not be referred.

- iv. Brief description of treatment instituted.

j) *Dying Declaration*: In cases are not immediately fatal the victim may be able to give some account of the event leading injuries. It is the duty of the treating doctor to get the dying declaration recorded in such cases of trauma where there is likelihood of death in near future or when the condition of the patient is critical. Normally dying declaration is recorded by Magistrate and therefore, an immediate intimation should be sent to the Police by the Medical Officer for calling the Magistrate to record the declaration. If the condition of the patient is deteriorating or there is no time to call the Magistrate, the attending doctor should record the dying declaration himself in the presence of two respectable witnesses who may be fellow doctors or nursing staff. If and when the Magistrate arrives to record a dying declaration, the Medical Officer should help him and as far as possible be present during the recording of such declaration. A certificate of mental fitness (compos-mentis) of the victim mentioning date and time should be given by the Medical Officer and this should be entered in the record of the case. If the patient has been declared unfit, the reason thereof must be mentioned e.g. patient was declared not fit mentally to give a statement because of unconsciousness / under effect of Morphine or Pethidine etc.

Hints for preparation and presentation of medicolegal reports:

- No doctor should ever rely on his memory either in writing reports or in giving evidence. For to do so, is to risk injustice and also likely to invite withering criticism from the law.
- The Doctor should understand what is desired in a medicolegal documents.
- Medicolegal documents should be prepared in duplicate preferably with a ball pen with utmost care on proper form / proforma giving all necessary details avoiding overwriting. Corrections if any should be initialed and abbreviations avoided. Words should be distinct and legible and the report

should be serially numbered.

- ▶ He must develop a proper acceptable style in writing medical reports. The report should be thorough and should contain all positive findings, full description of injuries if any, and the details of scientific investigations done for diagnosis and treatment.
- ▶ The doctor has to learn to draw conclusions correctly and logically based on the facts he has observed.
- ▶ Medicolegal reports must be submitted to the authorities promptly, immediately after the examination. Delay may lead to unpleasant allegations against the Doctor.
- ▶ Medicolegal documents should be considered as confidential records and should be stored under safe custody to avoid tampering.
- ▶ In case the police officer wants some clarification / subsequent opinion regarding any point in the report, an application in duplicate in this respect be obtained from him. The clarification / subsequent opinion be given on the reverse of the application and another copy of application and opinion be kept for and attached to the carbon copy of the original MLR prepared earlier. This would be helpful to the medical officer for ready reference while appearing in court at a later date as a witness.
- ▶ Medical Officers may not be called upon to proceed to the scene of an occurrence to examine injured persons except in cases of real urgency and when it is impossible to bring the injured person to the nearest dispensary or hospital.
- ▶ All Medical Officers incharge of hospital and dispensaries are required to report to the nearest police station at an earliest / within 24 hours all cases of serious injury or of poisoning admitted by them for treatment, whether such cases have been brought in by the police or not.

Definition of Injury, Hurt and Grievous Hurt: Section 44, 319 and 320 I.P.C. define Injury, Hurt and Grievous hurt respectively as follows:

Section 44: *Injury:* denotes any harm whatsoever illegally caused to any person in body, mind, reputation or property.

Section 319: *Hurt:* whoever causes bodily pain, disease or infirmity to any person is said to cause hurt.

Section 320: *Grievous Hurt:* The following kinds of hurt only are designated as grievous Emasculation; Permanent privation of the sight of either eye;

Permanent privation of the hearing of either ear; Privation of any member or joint; Destruction or permanent impairing of the powers of any member or joint; Permanent disfigurement of the head or face; Fracture or dislocation of bone or tooth; and Any hurt which endangers life or which causes the sufferer to be during the space of twenty days in severe bodily pain or unable to follow his ordinary pursuits. Proforma (No. 1 and 2) used for reporting injury are given at the end of this chapter.

Giving Medicolegal Opinions About Nature of Injury:

The attending doctor has to opine whether the injury is simple or Grievous in nature (see Column No. IV of Proforma No. 1) and about the weapon, whether blunt sharp or firearm. Section 320 I.P.C. has outlined, what can be defined as a "Grievous Hurt". The other injuries (which are not defined u/s 320 I.P.C. are classified as "Simple Hurt",

- ▶ Any injury which endangers life (described under subclause 8 of 320 I.P.C.) means, any injury, which can cause imminent danger to life. It should be kept in mind that mere stay of 20 days in a hospital would not constitute grievous hurt. The stay in the hospital should have justified reason.
- ▶ If the patient has a suspected fracture or dislocation of bone / tooth; an X-ray must be advised and opinion should be kept reserved till receipt of report.
- ▶ If there is any dental injury, always take opinion of dentist for the injury along with oral hygiene, condition of adjacent teeth and number of teeth etc. Remember that, the dental injury is usually associated with injury to lip and or gums.
- ▶ If injury is examined quite recently after sustenance, and patient is either in agony or there is history of head injury with or without unconsciousness then the Medical Officer should defer immediate opinion and express the opinion after keeping the injured "Under Observation".
- ▶ In respect of medicolegal opinion on the nature of injuries there may arise 2 situations. The one, where neither X-ray nor a period of observation is required for determining the nature of injury and the other where any of above or both are required. Neither opinion should be kept pending in the first situation nor should one overshoot to declare in a situation when opinion can't be expressed without X-ray or the period of observation or opinion of the specialist.

Medicolegal Postmortem:

The medicolegal examination is the official investigation of a sudden, unexpected, unnatural and suspicious death under the laws of the state for the protection of its citizens and the information derived from it are applied to legal purposes. It is done to:-

- ▶ **To establish the identify of deceased especially when it is not known.** Identification is basically job of police. According to Section 6.37 of Rajasthan Police Rules, 1965 if a body is unidentified, the officer making the investigations shall record a careful description of it, giving all marks, peculiarities, deformities and distinctive features shall take the finger prints and shall have photograph of the body.
- ▶ Medical Officer can also note the height, weight, marks of identification, number of teeth, and description of hair, congenital / acquired deformity etc. in the postmortem report, which may be helpful to the police in identification of the person in future. However, if the skeleton is brought for postmortem skull shall be preserve for superimposition and if body is mutilated or fragmentary remains are brought for examination available material shall be selected and preserved for D.N.A. finger printing.
- ▶ **To ascertain the cause of death i.e. whether natural or unnatural; whether death is due to trauma, violent asphyxia, poisoning, etc.** After completing postmortem examination the Medical Officer should give his opinion as to the cause of death, based on the findings observed. Donot use the word, “probably”, in giving cause of death. But in those cases, when the Medical Officer is unable to find any cause of death because all the organs / viscera being healthy and there being no injury sufficient to account for death. In such cases it is advisable as a precautionary measure to preserve the viscera for chemical analysis and histopathological examination and keep the opinion reserve till receipt of investigation reports.
- ▶ **To ascertain the manner of death, whether homicidal, suicidal or accidental.**
- ▶ It is not always essential to give opinion about manner of death. Manner of death (Homicidal / Suicidal / Accidental) can only be given if there is clear evidence / circumstance establishing it.
- ▶ **To estimate the time since death.**
- ▶ Exact time since death cannot be ascertain. Give approximate (minimum to maximum) time of death from various postmortem changes in the body e.g.

rigor mortis, postmortem staining, degree of putrefaction etc. Gastric contents and volume of urine in bladder. Circumstantial evidence also help in ascertaining time since death.

- ▶ **To determine the question of live birth, viability and period of survival after birth in cases of dead bodies of new born infants.**
- ▶ **To collect and preserve any trace evidence left on the body of the deceased by the assailant.**

Rules to be followed while conducting postmortems:

Authorized Officer to conduct postmortem examination : Any M.O./ Specialist/ Medical Jurist / Teacher in a Medical College who possess any qualification described under Indian Medical Council Act of 1956 and is registered in any State Medical Register is entitled to perform the postmortem examination. Qualified doctors working in a private Medical College or private hospitals permitted for medicolegal work by State Government are also entitled to do postmortems. According to Govt. of Rajasthan's Instructions regarding medicolegal work 1960 "Bodies for postmortem examination shall be forwarded to the nearest medical officer.

Medical Officer duly duty bound to conduct postmortem examination as early as possible- The instruction regarding medicolegal work 1960, states that it shall be the duty of the medical officer to examine all bodies sent to him as soon as practicable after arrival. Postmortem examination should be made as soon as requisition is submitted by the police. Performing a postmortem is most important, though an unpleasant ;duty and no excuse (e.g. attending upon a midwifery care or any other similar reason) can prevent a Medical Officer. No one should refuse to make an examination on the ground that putrefaction is too far advanced.

Postmortem Examination - When and by whom : According to section 6.35 of Rajasthan Police Rules, 1965; the body shall be sent to the nearest Medical Officer authorised by the Government to conduct the postmortem examination. The sending of bodies for examination may only be dispensed with, where such action is otherwise required when conditions exist such as advanced putrefaction, which would clearly make examination useless. The law requires that the dead body shall be sent to the nearest qualified medical officer. The summoning of such officers to conduct examination at or near the scene of the death shall not be restored to save in exceptional case. These may occur, where owing to advanced putrefaction or the circumstances in which the corpse was

found, movement of the corpse may make it impossible for the medical officer to form a correct opinion as to the nature of the injuries. In such cases if the investigating officer considers expert post-mortem examination essential in the interest of justice, he shall request the qualified medical officer to proceed to the spot for examination. The medicolegal postmortem examination can be performed only on the receipt of a written requisition for conducting postmortem examination along with the Inquest Report (PANCHANAMA). Before commencing the examination, the Medical Officer should carefully read the Inquest Report and compare the injuries mentioned in it with that of the body. Discrepancy if any, must be reported. In case of death in hospital, the "Bed Head Ticket" should be perused to note the clinical condition, diagnosis, management and time of death etc. along with the terminal events.

Postmortem Examination during Natural Light- In view of the technical difficulties, the postmortem shall be done normally only in day light (from dawn to dusk). The postmortem in night should only be done in exceptional cases, when some law and order situation is involved and that too under orders of a Executive Magistrate and not merely on the insistence of the relatives.

Examination of the Body to be thorough- The examination of the body should be thorough and the notes of antemortem or postmortem injuries / appearance discovered should be as minute as possible.

Postmortem Report : The postmortem report shall be prepared in duplicate; The report shall be dispatched within 24 hours; The cause of death should be communicated immediately to the investigating officer in vernacular, so that if there is any discrepancy the same may be got verified by another Medical Officer before the body is cremated; No rough notes be prepared by the Medical Officer but he should proceed to write the report on the postmortem proforma [specimen annexed], at the very time he conducts and finishes the examination.

Custody of dead body- In case of death of a medical legal patient in the hospital / casualty department the stored till proper disposal is done. The body should be sent to the mortuary from where it can be handed over to the police / Magistrate.

Preservation of Viscera / material- In suspected cases of poisoning or alcohol intoxication, viscera are preserved for chemical analysis. Common salt saturated solution is generally used as preservative. In cases of sudden / expected death viscera are preserved for chemical analysis as well as for histopathological examination. For histopathology viscera are preserved in 40% Formalin. In cases of highly decomposed bodies the viscera are preserved both for chemical analysis and histopathology. Any foreign body / bullet / pellet etc. recovered

during postmortem shall be preserved as such. In case of mutilated dead bodies tissue remnants are preserved for D.N.A. finger prints which are matched with DNA finger prints of blood relatives. Nucleated cells are the source of D.N.A. So samples of the following body fluid / tissue may be collected for D.N.A. finger printing :- (i) Blood (ii) Smegma (iii) Vaginal epithelial cells (iv) Tooth pulp (v) Bone Marrow (vi) Hair roots (vii) Muscles (viii) Skin (ix) Mucus membrane. If a body recovered from source of water, but the finding of Antemortem during are not present, viscera are preserved for chemical examination and also for "Diatom Test". For diatoms bone marrow e.g. sternal piece, piece of femur are consider good sources.

Proforma 3 and 4 annexed at the end of this chapter are used for reporting postmortems and viscera examination.

Further Readings

- ▶ बबेल, डॉ. बसन्ती लाल : पुलिस नियम एवं अधिनियम, प्रथम संस्करण, बाबेल लॉ पब्लिकेशन्स, जयपुर 1996
- ▶ Goel M.R. and Saraswat, P.K. : Manual of Medicolegal Practice; Unique Books, 1996
- ▶ Legal Aspect of Hospital Administration Block II, NIHFV, Munirka, New Delhi; 2002
- ▶ Subrahmanyam B.V. : Modi's Medical Jurisprudence and Toxicology, 22nd edition, Butterworths; 1999.
- ▶ Government of Rajasthan orders:
 - ME/MLC (2002-2050-2132 dated 24.7.02 from Director AIDS
 - F 15(25)MCH/2195/II dated 5.5.2005 from D.S. Gr-2, M&H, GoR.
 - F 16(28)ME/ Gp-1/2004 dated 8.6.2005 from D.S. Gr-1, M&H, GoR.
 - State Gazetteer, Part A (II), Home Gp-10, Notice dated 25.9.2004
 - F 71/MCH/2/2002 dated 29.4.2002 from PHS, GoR.
 - F 16 (1) ME/ Gr-1/05 dated 19.9.2005 from DS-Gp-I, M&H, GoR
- ▶ Proforma designed by Govt. of Rajasthan
 - Medico legal injury Report
 - Medicolegal X-ray Requisition form
 - Medicolegal Postmortem Report
 - Requisition of Viscera Examination

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P07

E.S.I. Scheme in Rajasthan

O.P. Gupta

It is a social security scheme under provision of E.S.I. Act-1948. It provides medical care and cash benefits to insured persons and their family members in State. The Employees' State Insurance Scheme is in operation in the State of Rajasthan since 2nd December, 1956. It includes:

- ▶ Non-seasonal factories using power employing ten or more persons.
- ▶ Non-power using factories employing more than 20 employees.
- ▶ New classes of establishment such as Shops, Hotels, Restaurant, Cinema, News paper employing 20 or more person.
- ▶ Educational Institutes. w.e.f. Oct 2004

Employees in receipt of wages not exceeding Rs. 10,000/- per month in factories / establishments are covered under the scheme.

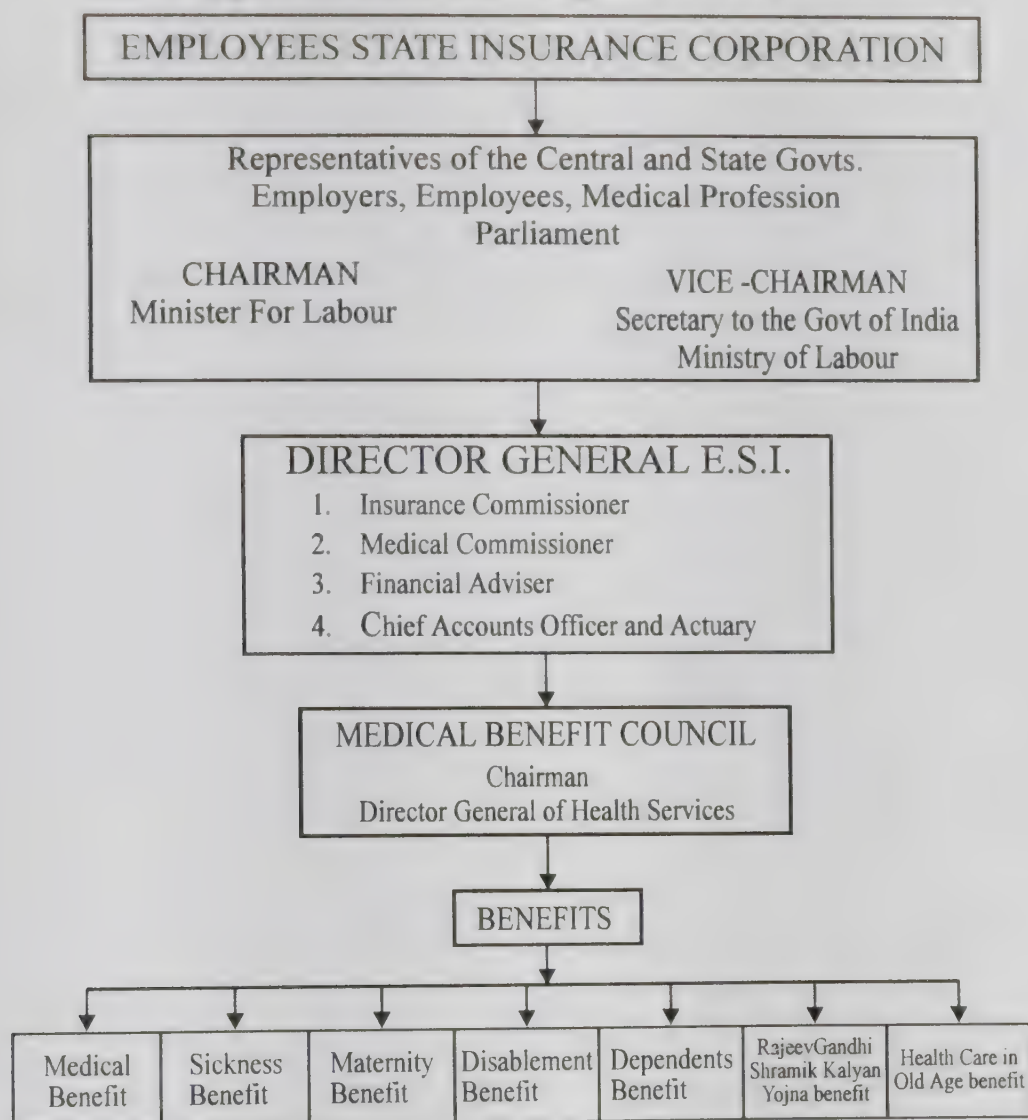
Insured Employees (Industrial Workers) / Insured Persons

Insured Employee (Industrial Worker) is the person whose contribution to ESI Corporation is paid. Insured Persons (IPs) include: a) Insured Employees and b) Those workers who are not paying their contribution because of retrenchment, retirement etc; but are in the benefit range.

Benefits Under E.S.I. Scheme

- | | |
|--------------------------------------|----------------|
| ▶ Medical Benefit | (in kind) |
| ▶ Sickness Benefit | (cash benefit) |
| ▶ Enhanced Sickness Benefit | (cash benefit) |
| ▶ Extended Sickness Benefit | (cash benefit) |
| ▶ Maternity Benefit | (cash benefit) |
| ▶ Disablement Benefit | (cash benefit) |
| ▶ Dependant's Benefit | (cash benefit) |
| ▶ Funeral Benefit | (cash benefit) |
| ▶ Rajeev Gandhi Shramik Kalyan Yojna | (cash benefit) |
| ▶ Healthcare in old age | (in kind) |

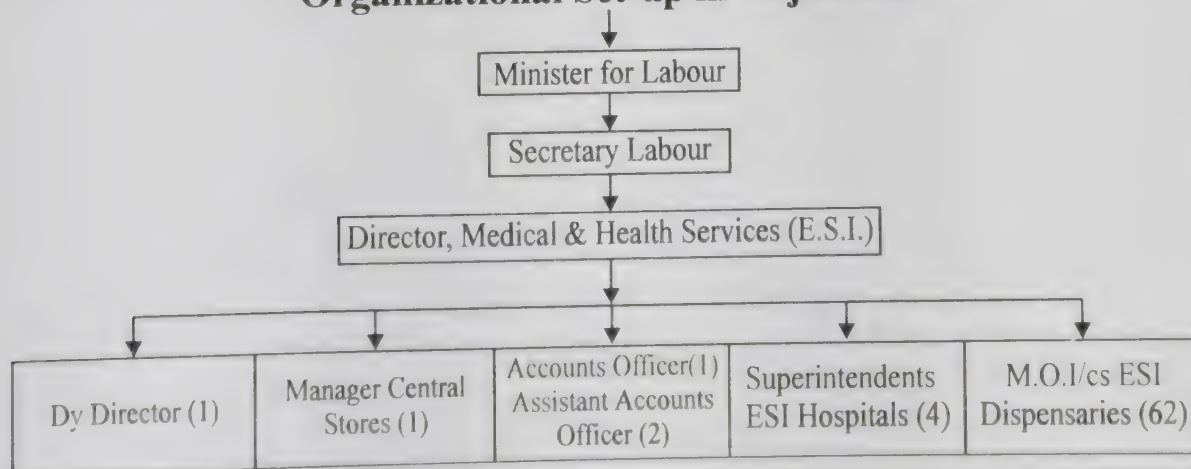
Organizational set up of ESI Scheme



Extra Benefits

- (1) Extended Sickness Benefit
- (2) Artificial limbs, dentures, family planning etc.
- (3) Family Medical Care
- (4) Protection against dismissal or discharge from service, during the period of sickness
- (5) Funeral Benefit

Organizational Set-up in Rajasthan



1. Medical Benefit

- ▶ Medical Benefit is available to an insured person and his family from the day he enters into insurable employment through ESI Dispensaries, clinics of the Insurance Medical Practitioners, Hospitals and Specialists Centres. Artificial limbs/artificial dentures, spectacles and hearing-aids are being provided to insured persons who suffer loss of relevant faculty due to employment injury, occupational diseases or in the event of sickness and non-employment injuries. Further, the families of insured persons are also eligible for these facilities. The scale of these facilities has been liberalized to include artificial eye, wigs to female beneficiaries, cardiac pacemakers, wheeled chair/tricycle, spinal supports, cervical collars, walking calipers, surgical boots, crutches, prosthesis, total hip etc. to insured persons as well as their families as part of medical care with the solitary exception that the provisions of the spectacles and artificial dentures. It is restricted for the present to insured persons only. Incidental expenditure on transport, stoppage charges at the centre, traveling expenses for the attendants, if required, are also being met under the ESI Scheme.
- ▶ Medical Benefit to Insured Person who ceased to be in Insurable Employment on account of Permanent Disablement. (Rule 60 of ESI (Central) Rules) : The Medical benefit has further been extended to permanently disabled insured person who ceased to be in insurable employment due to employment injury and his spouse with effect from 1.2.91. This benefit is provided on payment of contributions by him in lump-sum for one year @ Rs. 10/- per month at a time in advance.
- ▶ Medical Benefit to Retired Insured Persons : (Rule 61 of ESI (Central) Rules) Medical benefit has also been extended to the insured persons and/or his spouse who retired on attaining the age of superannuation and who has been in insurable employment at least for 5 years. This benefit is provided on payment of contribution by him in lump sum for one year @ Rs. 10/- per month at a time in advance.

The above mentioned medical benefits are provided to Insured Person and their family through a net work of 5 E.S.I. Hospitals and 62 E.S.I. Dispensaries and one Homeopathic Dispensary & 588 Beds (445 Commissioned in ESI Hospitals and Annexes attached in government hospitals + 143 reserved beds in government hospitals).

2. Sickness Benefit (Section 46 (a) (4) of ESI Act)

Sickness Benefit represents periodical payment made to an insured person during the period of certified sickness. To qualify for this benefit, contributors should have been paid for at least half the number of days in the relevant contribution period. The maximum duration of sickness benefit is 91 days in any 2 consecutive benefit periods. The sickness benefit rate is roughly equivalent to 50% of the average daily wage of any insured person.

3. Extended Sickness Benefit

After exhausting the Sickness Benefit up to 91 days an insured persons suffering from tuberculosis, cancer, mental and malignant diseases, paraplegia, hemiplegia non-union or delayed union of fracture etc; and other specified long term diseases, is entitled to average daily wage for a further period of 124 days/309 days provided he has been in continuous employment for a period of 2 years of more in a factory of establishments to which the benefit provisions of the Act apply immediately proceeding the commencement of the spell and fulfils the contributory conditions as per Corporation's Resolution. The list of these long term diseases is constantly reviewed by the Corporation, on the recommendations of the Medical Benefit Councils. These include :

- ▶ Tuberculosis
- ▶ Leprosy
- ▶ Chronic Empyema
- ▶ Bronchiectasis
- ▶ Interstitial Lung diseases
- ▶ AIDS
- ▶ Malignant Diseases
- ▶ Diabetes Mellitus-with proliferative retinopathy/diabetic foot/ nephropathy.
- ▶ Monoplegia
- ▶ Hemiplegia
- ▶ Paraplegia
- ▶ Hemiparesis
- ▶ Intracranial space occupying lesion
- ▶ Spinal Cord Compression
- ▶ Parkinson's disease

- ▶ Myasthenia Gravis/Neuromuscular Dystrophies
- ▶ Immature Cataract with vision 6/60 or less
- ▶ Detachment of Retina
- ▶ Glaucoma
- ▶ Coronary Artery Diseases
- ▶ Congestive Heart Failure-Left, Right
- ▶ Cardiac valvular Diseases with failure/complications
- ▶ Cardiomyopathies
- ▶ Heat disease with surgical intervention alongwith complications
- ▶ Chronic Obstructive Lung diseases (COPD) with congestive heart failure (Cor Pulmonale)
- ▶ Cirrhosis of liver with ascilits/chronic active hepatitis ("CAH")
- ▶ Dislocation of vertebra/prolapse of intervertebral disc
- ▶ Non union or delayed union of fracture
- ▶ Post Traumatic surgical amputation of lower extremity
- ▶ Compound fracture with chronic osteomyelitis
- ▶ (a) Schizophrenia (b) Endogenous depression (c) Maniac Depressive Psychosis (MDP) (d) Dementia
- ▶ More than 20% Burns with infection/complication
- ▶ Chronic Renal Failure
- ▶ Reynaud's disease/Burger's disease.

The Director General ESIC has been empowered to enhance the duration of Extended Sickness Benefit beyond the present limit to 400 days (91 days of sickness benefit plus 309 days of extended sickness benefit) to a maximum period of two year in deserving cases duly certified by a medical board. Facility for extension of extended sickness benefit beyond the period of 400 days would be available up to the date on which the insured person attains the age of 60 years. The rate of Benefit during the extended sickness benefit period shall be 40% more than the Standard Benefit Rate instead of 25% earlier.

4. Enhanced Sickness Benefit:

At double the ordinary sickness benefit rate i.e. at about full average daily wages, is also provided to insured persons eligible to ordinary sickness benefit for undergoing sterilisation operations for Family Welfare for a period upto 7 days in the case of vasectomy and upto 14 days for tubectomy, the period being

extendable in case of post operative complications etc.

5. Maternity Benefit

Maternity Benefit is payable to an insured women for 84 days in the case of confinement 42 days in the case of miscarriage. For being entitled to receive Maternity Benefit in respect of confinement or miscarriage occurring in a benefit period, insured woman must have paid contributions for not less than 80 days in the immediately preceding two consecutive contributions periods. The rate of Maternity Benefit is double the standard benefit rate. For claiming this benefit, the insured woman must submit a certificate of pregnancy in Form 20, Certificate of expected date of confinement in Form 21 and certificate of actual confinement / miscarriage in Form 23 alongwith the claim in Form 22. The benefit is admissible from the date, the insured woman ceases to work for wages provided such a date is not preceded by 42 days of the expected date of confinement. The insured woman can, however claim the entire benefit of 84/42 days immediately after the date of actual confinement/miscarriage. An insured woman is also entitled to receive Maternity Benefit for a period not exceeding one month in the case of sickness arising out of pregnancy, confinement, premature birth of the child or miscarriage. In case of death of an insured woman during her confinement or miscarriage etc., the amount of maternity benefit payable, can be paid to the nominee of the insured woman or her legal heir.

6. Disablement Benefit (Section 46(c))

In case of temporary disability arising out of an employment injury, disablement benefit is admissible to an insured person for the entire period so certified by the insurance Medical Officer/ Insurance Medical Practitioner for which the insured person does not work for wages. The benefit is not subject to any contributory condition and is payable at a rate equivalent to about 62.5% of the daily average wages (this rate has been enhanced to 70% of the daily average wage in respect of employment injuries suffered on or after 01.01.1981). The Benefit is, however, not payable if the incapacity does not exceed 3 days excluding the date of accident.

Where the disablement due to an employment injury results in permanent, partial or total loss of earning capacity, the periodical payments are available to the insured persons for life as a percentage of the permanent disablement rate depending on the loss of earning capacity as may be certified by a duly constituted Medical Board. Permanent Disablement Benefit does not exceed Rs. 10,000/- at the time of commencement of final award of their permanent

disability.

7. Dependants Benefit (Section 46 (d) & 52)

Periodical pension is payable to dependants of an insured person who dies as a result of an employment injury. The widow gets the benefit until re-marriage and the amount is equivalent to $\frac{3}{5}$ of the disablement benefit rate, and each child gets an amount equivalent to $\frac{2}{5}$ thereof until he/she attains 18 years of age provided that in case of infirmity, the benefit continues to be paid till the infirmity lasts. However, it is subject to the condition that the total of dependants benefit distributed amongst the widow and legitimate or adopted children of the deceased person should not exceed at any time the full rate of disablement Benefit. In case it exceeds the above ceilings, the share of each of the dependants if any is proportionately reduced. The benefit is not payable to married daughters. In case the insured person does not leave behind any widow or child, benefit is payable to other dependants.

8. Funeral Expenses

Funeral Expenses are paid in the nature of a lump sum of Rs. 2,500/- on the funeral of a deceased insured person. The amount is paid either to the eldest surviving member of the family or in his absence to the person who actually incurs the expenditure on the funeral.

Rehabilitation Allowance: The Corporation vide its Resolution dated 22.12.79 has decided to grant Rehabilitation Allowance to insured persons for each day on which they remain admitted in the artificial limb centre for fixation or repair, or replacement of the artificial limbs on the rates, which generally confirm to Sickness Benefit Rate as specified in the Resolution. The above Benefit is payable with effect from 1.1.1980.

9. Rajeev Gandhi Shramik Kalyan Yojna

The E.S.I. Corporation has decided to provide unemployment allowance to the Insured Persons who have been rendered unemployed involuntarily due to closure of the factory/establishment retrenchment or permanent invalidity arising out of non-employment injury. It shall apply to an Insured Person who becomes unemployed on or after 1st April, 2005. The maximum duration, for which an Insured Person shall be eligible to draw the unemployment allowance during his/her entire life time, would be six months. The Insured Person eligible for unemployment allowance under the scheme shall also be entitled to medical care for himself/herself and his/her family from the ESI Dispensaries/ESI

Hospitals IMPs Clinics for a period of 6 months from the date of unemployment or till the end of benefit period corresponding to contribution period before unemployment, whichever is later.

Unemployment which arises due to following reasons shall be covered under the scheme:

- ▶ Retrenchment as defined in the Industrial Disputes Act, 1947.
- ▶ Closure of the factory/establishment as defined in the industrial Disputes Act, 1947.
- ▶ Permanent invalidity not less than 50% arising out of non-employment injury. The invalidity should be duly certified by a Medical Board constituted by the Central or State Government.

10. Health Care in old age

According to the Rule 60 and 61 of ESI (Central) rule 1950 those insured persons who are no more in the employment due to permanent disability as a result of employment injury or those who leave the employment after attaining the age of retirement are entitled to this medical benefit for self and the life partner. The insured person becomes eligible for the benefit after depositing Rs. 120/- (Rs. 10/- per month) in the local office in advance.

Facts and Figures on ESI Scheme in Rajasthan

No. of places where ESI scheme exists	48
a) Allopathic (including ESIC Model, Hospital Jaipur)	05
b) ESI Dispensaries	62
c) Homeopathic Dispensary	01
d) Part time ESI Dispensaries	08
Total	76
Indoor Beds at ESI Hospital Jaipur	250
Indoor Beds at ESI Hospital Kota	60
Indoor Beds at ESI Hospital Jodhpur	50
Indoor Beds at ESI Hospital Bhilwara	50
Indoor Beds at ESI Hospital Pali	50
Total	460

Total number of beds commissioned in the scheme in different hospitals of state including annexes are General-351; Maternity - 75; T.B. - 19 - Total - 445.

Manpower in ESI

Full time specialists	49
Part time Specialists	83
No. of S.M.Os./M.Os.	204
Para Medical Staff	495
Others	673
No. of Ambulances	06
Those Dispensaries which have their own building	28
No. of I.Ps. in Scheme as on 31.03.2006	350805

Finances of the Scheme

- **Employer's Contribution** This is payable by the employer presently @ Rs. 4.75 per I.P. per month. Wages upto Rs 10,000/-
- **Employees Contributing** This is payable by employee presently @ 1.75% of employees wages upto Rs. 10,000/-
- **State Share** Government Contribute 1/8 of the total cost up to ceiling limit of Rs 900/- per IP per year, rest will be borne by state Government.
- **Central Share** Central Government Contribute 7/8 of the total cost of medical benefits.

Insured Employees and Insured Persons in Rajasthan

As on 31st March	No. of Insured Employees	No. of Insured Persons
2001	257950	271950
2002	248850	276800
2003	239500	267450
2004	246300	275050
2005	275200	303950
2006	319677	350805

Budgetary Provisions of E.S.I. Scheme : As per agreement between State Government and E.S.I. Corporation there is a share of Corporation and Government in the ratio of 7/8 and 1/8 for the entire shareable expenditure for the State.

(1) Within ceiling	Rs. 900/- per Insured person per year
Break up of	Rs. 900/-
Establishment Cost	Rs. 540/-
Drugs & Dressings and others	<u>Rs. 360/-</u>
	<u>Rs. 900/-</u>

(2) Outside Ceiling but shareable

(a) Expenditure for purchase of vehicles and Equipments costing more than Rs 25,000/- No limit

(b) Rent of ESI Buildings. No limit

Opening of New Dispensaries : Total expenditure on medical care based on prescribed ceiling incurred by the State Government in respect of extension of E.S.I. Scheme to new geographical areas, would be borne by the E.S.I. Corporation for an initial period of three years. Thereafter, the expenditure would be shared between the Corporation and the State Government in the usual ratio as normal expenditure on medical care.

Basis of budget estimates for any financial year : It is calculated by the mean number of I.Ps. in the concerning financial year multiplied by Rs. 900/-. This process goes on year to year basis.

Medical Certification : (Certificate) : For Sickness/Temporary Disablement/Extended Sickness/Sickness arising out of pregnancy, confinement or miscarriage etc., regulations provide for the issue, by the IMO, of certificate on forms 8, 9, 10 and 11. The periods of incapacity certified in each of these certificates are summarized in next page :

Nature of Certificate	Form No.	Maximum period to be covered	Provision for certifying In capacity in advance	Total days Certified
First	8	Dt.of Exam. only	Upto 2days (First & Final)	3
Final	9	7 days	Upto 2days	9
Intermediate	10	7 days	Nil	7
Spl. Intermediate	11	7 days	Upto 28days	35

The different certificates which are issued by Insurance Medical Officer's to the I.Ps or their families are enumerated as under with form numbers:

Certificate	Form No.
Death Certificate	17
Certificate of Pregnancy	20
Certificate of expected confinement	21
Certificate of confinement/miscarriage	23
Maternity Benefit Death Certificate	24-B

NGO's and Health

Narendra Gupta

Medical officers are advised to take in cognizance the NGOs working in health sector in area assigned to them for management of national programme. Currently State AIDS Control Society, District Health Societies, RHSDP and Program like NVBDCP, Blindness Control and RNTCP are seeking the involvement of NGOs. In each district a mother NGO functions exclusively for RCH-2.

Editor

WHO defines voluntary organizations as “A social sphere separate from both the state and market made up of non state, not for profit, voluntary organizations ranging from formal organizations registered with authorities to informal social movements coming together around a common cause.”

These organizations are now known by different names such as non-governmental or civil society or not for profit organizations. Nonprofit organizations often are characterized as charities or service organizations; sometimes, they may be organized as a not-for-profit corporation or as a trust or they may be purely informal. Sometimes they are also called foundations or endowments that may have large funds. Most foundations give out grants to other nonprofit organizations, or fellowships to individuals. However, the name foundations may be used by any not-for-profit corporation even volunteer organizations or grass roots groups. A nonprofit may be a very loosely organized group, such as a village association or a trade union, or it may be a complex structure such as a university, hospital, documentary film production company or educational book publisher. The attributes of NGOs that increase their potential effectiveness are their ability to reach areas of severe need, promotion of local involvement, low cost of operations, adaptiveness and innovation, independence, and attempted sustainability.

Three stages or generations of NGO evolution have been identified by Korten's (1990) First, the typical development NGO focuses on relief and welfare, and delivers relief services directly to beneficiaries. Examples they are the distribution of food, shelter or health services who notices immediate needs and responds to them. NGOs in the second generation are oriented towards small-scale, self-reliant local development. At this evolutionary stage, NGOs

build the capacities of local communities to meet their needs through 'self reliant local action'. Korten calls the third generation 'sustainable systems developments'. At this stage, NGOs try to advance changes in policies and institutions at a local, national and international level; they move away from their operational role to play more as a catalyst thereby changing mode from a relief to a development agency.

Voluntary organizations are a heterogeneous group. They could be very different in terms of their size, scope, subject, objectives and activities. There could be voluntary organizations who work on single issue such as environment, education or health and have global presence. At the same time another organization could be working on multiple issues in a limited geographical area. Then professional bodies, scientific, literary and religious associations are also seen as voluntary organizations.

The word non-governmental organizations (NGOs) in India came more into practice in late eighties when government began to recognize the role of voluntary organizations and partner with them in many different aspects of its work especially in social sector programme viz. education, health and rural development for people located in remote and inaccessible areas. In the government understanding NGOs are those organizations which are legally registered bodies. The commonest instrument is Societies Registration Act. Other instruments are Trust Act. and registration under not for profit clause of the Companies Act. Acceptance to the fact that voluntary organizations have important role to play in rural development, the Government of India constituted an autonomous body called Council for Advancement of People's Action and Rural Technology (CAPART) in 1986 under the aegis of the Ministry of Rural Development. The council earlier worked as two independent bodies as PADI & CART since late fifties. Central Social Welfare Board and later state boards also provided support to voluntary organizations, but it was mainly for maintenance of orphanage, destitute homes etc. Chief role of the Council is to provide financial support to voluntary organizations. Later, many different ministries of the central Government set up committees or bodies to support and promote voluntary action in their respective areas.

NGOs in Health Sector

Delivery of health care in India has been a voluntary service in good old days. Medicines for acute and chronic illnesses were prepared by knowledgeable persons and clerics in institutions of worship and distributed free to patients. There was also a strong tradition of home remedies. Later pharmacopeias based

on *Charak Samhita*, *Unnani & Siddha* systems evolved. But with the progress of science, import of western medicine, health services began to become more systematic. The introduction of finance capital in health system led to its commercialization and there is now a very vibrant private sector in medical care. Philanthropic especially faith based organizations has maintained the tradition of voluntary health services. However, the institutions created by these organizations are mostly located in urban areas and essentially provide clinical care only. These organizations offer services ranging from simple out patient care to super specialties in different systems of medicine. Similarly private sector also provides clinical services only. NGOs have a good track record in medical care and in supporting community-based health care activities. They have important qualities including reliability and low staff turnover, freedom from rigid bureaucracy, experience in (partly) cost-recovery systems, proximity and adaptation to the needs of the target population, preference to support and serve the under-served, and high staff motivation. NGOs with such qualities are capable of developing and testing new solutions such as in the fields of building, financing, appropriate technology and community involvement.

Since late sixties and early seventies of twentieth century, a new wave of voluntary health movement began to emerge in India and many other countries of the world. This wave was international and it evolved more in countries where health condition of people was precarious such as India in comparison to countries that had industrialized.

The new voluntary health movement began to look at the health of the people instead of the only diseases by which people will get afflicted with. It began to examine why there is concentration of health facilities in urban areas, while need for such institutions is more in rural areas because more people live there and more intense diseases are prevalent there. It began to question why with the introduction of new clinical and diagnostic gadgets, health care is increasingly becoming out of bound for people. It began to look at the factors which caused ill health and why it affected such categories of persons and families who are socially seemingly ailments, what are the causes of causes that create such environments that led people to fall sick more frequently and die prematurely. These voluntary groups began to begin into the basic and deeper issues of the ill health and looked for lasting answers to remove them. Strong critiques of status of health of people were evolved. These critiques analyzed different dimensions of various health schemes and programmes and advocated for policy and programme changes. a new realization was unfolding which was based on

understanding that in order to make community healthy one has to in villages, live with villagers, learn from and then work with them. As a result a novel wave of “go to villages” began and a new system of working for health of people got initiated. The approach adopted by these groups of people was community based, comprehensive and Promotive. The hallmark of this approach was people's mobilization around their health issues and how ordinary villagers can become aware of their health concerns and take charge for its management.

Some very notable community based health care projects were set up by motivated voluntary groups in different parts of India in early seventies. What these projects essentially worked on was the demystification of health & medicine and creation of community based cadre of health workers to create health awareness and manage simple ailments as close to the people as possible. These projects established that morbidity caused by common infectious diseases can be managed very effectively by village based volunteers after simple training in treatments, continuing support tot hem through steady capacity building and regular supply of basic essential drugs. These volunteers can be effective “change agents” as they are part of the same community and chosen by them.

These experiences showed that NGOs have attributes making them uniquely effective in providing community based health services. They could reach areas of great need in both rural and urban areas, particularly helping the poor, the dispossessed, and the isolated. NGOs placed maximum importance to community participation. Since they tended to be committed for the long term, they formed close bonds with community groups and institutions, resulting in strong support for their services. NGOs tended to operate at low cost due to their strong belief in their work, use of low cost technology, and streamlined services. It showed that NGOs have the flexibility to be adaptive and innovative. Since many NGOs usually were apolitical organizations, they had a local nonpartisan status, thereby received greater acceptance by government and the community. They strived for outcomes that were sustainable. They were effective in setting up sustainable primary health care delivery system. NGOs focused on a variety of areas. Community based NGOs focused on the prevention, treatment, or elimination of disease. Many NGOs engaged on human rights issued and framed interventions based on political economy of health.

The community based health care programmes initiated by voluntary organizations brought in a paradigm shift in thinking about the need for socialization of medicine and established concrete evidences for swing in the way health concerns of community are perceived. It argued for decentralized low

cost, people centred system of comprehensive health care delivery instead of high cost and techno-centric system of health care. A lot of this new health vision had focus towards prevention and promotion rather than simple management of ailments. Therefore, it advocated towards the social and economic determinants of health viz. people's access to complete food & nutrition, drinking water, personal hygiene and sanitation, secured shelter, safe working conditions besides affordable and rational health care for early treatment. Around the same time broader coalitions of health related NGOS began to emerge. These coalitions and network began to critically look at the way health policies are formulated and resources allocated for health care on national and global levels. These groups of NGOs engaged into policy dialogues and advocated for more pro people health policies. It is impossible to make any estimate of the number of NGOS in India and how many of them are into health related activities, but certainly it is not a small number.

Government - Non-government engagement

Government has been increasingly looking for constructive engagement with voluntary organizations in health care. Non-governmental organizations (NGOs) have increasingly been promoted as alternative health care providers to the state, furthering the same goals but less hampered by government inefficiencies and resource constraints. There have been instances when health departments of Government involved voluntary organizations in its activities but in the absence of any accepted guidelines, it was very sporadic, individualistic and mostly limited to community mobilization and public health education. Some of the areas where Government sought engagement with NGOs were organization of eye camps, family planning and maternal & child health activities. There had been some examples where a Primary Health Centre or Community Health Centre was handed over to voluntary organizations to operate. However, since past couple of decades, non-governmental organizations (NGOs) have increasingly been promoted as alternative to Government system including in health systems advancing the same objectives but not inhibited by government regulations, inefficiencies and perhaps resource constraints. As a result, the health departments of the Government have drafted policies for NGO participation.

The first such policy began after creation of Standing Committee on Voluntary Action (SCOVA) by the central Government and later by states on the request of central Government. These guidelines eventually informed for formulation of the schemes of Mother NGOs to promote reproductive and child

health programmes in underserved areas through field NGOs. The underlying philosophy of the Mother NGO scheme has been one of nurturing and capacity building. This scheme also focuses on addressing the unmet RCH needs. This is possible by involving NGOs in delivery of RCH services, in areas which are under served or un-served by the government infrastructure. Accordingly, NGOs are expected to move from exclusive awareness generation to actual delivery of RCH services. This is being done by utilizing and strengthening the existing government infrastructure and human resources and not creating a parallel structure.

Broadly the objectives of the MNGO scheme are: Addressing the gaps in information or RCH services in the project area; building strong institutional capacity at the state, district/ field level, advocacy and awareness generation. The key service delivery areas under the MNGO scheme are: Maternal and Child Health, family Planning, Adolescent Reproductive Health and Prevention and Management of reproductive tract Infections.

Besides cooperation in service delivery, it has been increasingly realized the importance of NGO input in health policy formulation, programme design and monitoring. Therefore NGO representation is found in many high and ground level committees formed at federal, state and district levels by the Government. NGOs also made a very vital contribution in the design and operational framework of the recently introduced National Rural Health Mission which seeks to increase public spending health and guaranteeing universal health services through major architectural corrections in health care delivery system. The operational framework of NRHM advocates for planning from below and proposes to establish community based systems of review and monitoring with active involvement of NGOs.

Many state Governments have formulated their own policies of Government and non Governmental participation. Rajasthan Government also drafted a policy through ARAVALI, an organization created by the Government. Later the health department of Rajasthan again drafted a policy of collaboration through a joint team drawn from Government and NGOs.

However, Government and NGO health care mix turn is more complex because not only is the distinction between government and NGO providers sometimes difficult to determine because of their operational integration, but NGOs may also suffer from resource constraints and management inefficiencies similar to those of government provider. Policy development must reflect the strengths and weaknesses of NGOs in particular settings and should be built on

NGO advantages over government in terms of resource mobilization, efficiency and/ or quality. Policy development will always require a strong government presence in coordinating and regulating health care provision, and an NGO sector responsive to the policy goals of governments.

However, it is becoming increasingly evident in the current scheme of things, that NGOs have very important role for evolving alternative approaches to universalize health to the people.

Further Readings

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Consumer Protection Act

Jagdish Singh

The Consumer Protection Act (COPRA), 1986 which came into force on 15th April, 1987 is a welfare legislation mainly tilting towards the consumer just as the industrial disputes act is loaded in favour of workers. The aims and objects of the act interalia are, as given in its preamble: the better protection of the interests of the consumer and for settlement of consumer disputes. It provides for speedy and inexpensive settlement of disputes within a limited time-frame, as against civil actions which are costly and take years in coming to a settlement. Provisions of the act are in addition to and not in derogation of any other law for the time being in force and are compensatory in nature.

In its landmark decision in *Indian Medical Association & Ors. V.V.P. Santha & Ors* decided on 13.11.1995, the Hon'ble Supreme Court affixed its seal of approval on the applicability of the Consumer Protection Act to members of the medical profession and has held that the services rendered to a patient by medical practitioner (except where the doctor renders service free of charge to every patient or under a contract of personal service) by way of consultation, diagnosis and treatment, both medical and surgical, would fall within the ambit of 'service' as defined in section 2(1) (o) of the Consumer Protection Act, 1986.

This subject is being dealt with in 3 parts :

- (1) The provisions of the act as applicable to the Doctors
- (2) Categories of the medical negligence and
- (3) How to prevent against litigation and it's adverse outcome.

PART - 1

COPRA as applicable to Doctors

We shall deal selectively with provisions of the act which are relevant to the medical profession, as they exist after the Act was amended by the Consumer Protection (Amendment) Act, 2002, w.e.f. 15.3.2003.

Complainant means a consumer; or any voluntary consumer association registered under the Companies Act, 1956 or under any other law for the time being in force or the Central Government or any State Government; or one or

more consumers, where there are numerous consumer sharing the same interest; who or which makes a complaint; or In case of death of a consumer, his legal heir or representative ; who or which makes a complaint.

Complaint means any allegation, in writing made by a complainant that the service hired or availed of or agreed to be hired or availed of by him suffer from deficiency in any respect.

Consumer means any "person" who hires or avails of any services for a consideration which has been paid or promised or partly promised and includes any beneficiary of such services other than the person who hires or avails of the services for consideration paid or promised, or partly paid and partly promised, or under any system of deferred payment, when such services are availed of with the approval of the first mentioned person.

Consideration means fees / payment. Fees may have been fully paid in cash or cheque, or undertaking is given that it will be paid, which is accepted by the doctor / hospital. The fees may have been given partly (as advance) with the understanding that the remaining bill will be paid subsequently. The payment may be done by the patient himself, or by someone else for the patient, e.g. father for his child, husband for wife, any person for someone.

A person who receives medical treatment in government or charitable hospital, which provides treatment to one and all free of cost is not a consumer under the Act. A person who receives treatment in a government or charitable hospital which provides treatment free of cost of some and on consideration to some would be a consumer, even if he has not paid any fees.

In case of death of patient who is a consumer, legal heirs (representatives) of the deceased will be considered as "consumer". If the payment has been made by any person who is not a legal heir of the deceased he too will be considered as 'consumer'.

The three words used above (deficiency, person, service) explained under this Act are as follows :

Deficiency means any fault, imperfection, short coming or inadequacy in the quality, nature and manner of performance which is required to be maintained by or under any law for the time being in force or has been undertaken to be performed by a person in pursuance of a contract or otherwise in relation to any service.

Comments: The Supreme Court defined medical negligence as, "The duties which a doctor owes to his patient, A person who holds himself ready to

give medical advice and treatment impliedly undertakes that he is possessed of skill and knowledge for the purpose. Such a person when consulted by a patient owes (i) a duty of care in deciding whether to undertake the case (ii) a duty of care in deciding what treatment to give and (iii) a duty of care in the administration of that treatment. A breach of any of those duties gives a right of action for negligence to the patient. The practitioner must bring to his task a reasonable degree of skill and knowledge and must exercise a reasonable degree of care. Neither the very highest nor a very low degree of care and competence judged in the light of the particular circumstances of each case is what the law requires. Person includes a firm whether registered or not; or a Hindu undivided family; or a co-operative society; or every other association of persons irrespective of being registered under the Societies Registration Act, 1860.

Service means service of any description which is made available to potential users and includes the provision of facilities in connection with banking, financing, insurance, transport, processing, supply of electrical or other energy, boarding or lodging or both, housing construction, entertainment, amusement or the purveying of news or other information but does not include the rendering of any service free of charge or under a contract of personal service.

Comments : On the meaning of the word "Service" the Supreme Court in I.M.A. V/ s. V.P. Shantha & others, came to the following conclusions :

- ▶ Service rendered to a patient by a medical practitioner (except where the doctor renders service free of charge to every patient or under a contract of personal service), by way of consultation, diagnosis and treatment, both medicinal and surgical would fall within the ambit of 'service' as defined in Section 2(1)(o) of the Act.
- ▶ The expression 'contract of personal service' in Section 2(1)(o) of the Act cannot be confined to contracts for employment of medical officer for the purpose of rendering medical service to the employer. The service rendered by a medical officer to his employer under the contract of employment would be outside the purview of 'service' as defined in Section 2(1)(o) of the Act.
- ▶ Service rendered at a Government hospital / health centre / dispensary or at non-government hospital / nursing home where no charge whatsoever is made from any person availing the service and all patients (rich and poor) are given free service - is outside the purview of the expression 'service' as defined in Section 2(1)(o) of the Act. The payment of a token amount for registration purpose only at the hospital / Nursing home would not alter the position

- ▶ Service rendered at a non-Government hospital / Nursing home where charges are required to be paid by the person availing such service falls within the purview of the expression 'service' as defined in Section 2(2) (o) of the Act.
- ▶ Service rendered at government hospital / health centre / dispensary or at a non-government / Nursing home where charges are required to be paid by persons who are in a position to pay and persons who cannot afford to pay are rendered service free of charge would fall within the ambit of the expression 'service' as defined in Section 2(1) (o) of the Act irrespective of the fact that the service is rendered free of charge to persons who are not in a position to pay for such services. Free service, would also be 'service' and the recipient a "consumer" under the Act.

Consumer Disputes Redressal Agencies: Redressal forums have been established at three different levels:

- ▶ "District Forum" by State Government. At least in each district or in certain cases one District Forum may cover 2 or more districts.
- ▶ "State Commission" by State Government (more than one in some States)
- ▶ "National Commission" (National Consumer Disputes Redressal Commission) by Central Government.

District Forum shall consist of (a) a person who is, or has been or is qualified to be a District Judge, its President, (b) two other members shall be persons of ability, integrity and standing and have adequate knowledge or experience or have shown capacity in dealing with problems relating to economics, law commerce, accountancy, industry, public affairs or administration, one of whom shall be a woman.

Pecuniary jurisdiction of the District Forum: The District Forum shall have jurisdiction to entertain complaints where the value of services and compensation claimed does not exceed rupees twenty lakhs.

Procedure: The District Forum shall on receipt of a complaint (a) allow the complaint to be proceeded with or rejected : provided that a complaint shall not be rejected unless and opportunity of being heard has been given to the complainant ; and the admissibility of the complaint shall ordinarily be decided within twenty-one days from the date on which the complaint was received. If the complaint is allowed, refer a copy of such complaint to the opposite party directing him to give his version of the case within a period of 30 days or such extended period not exceeding 15 days as may be granted by the District Forum; (b) where the opposite party, on receipt of a copy of the complaint, denies or

disputes the allegations or omits or fails to take any action to represent his case within the time given by the District Forum, the District Forum shall proceed to settle the consumer dispute, (i) on the basis of evidence brought to its notice by the complainant and the opposite party, where the opposite party denies or disputes the allegation contained in the complaint; or (ii) on the basis of evidence brought to its notice by the complainant where the opposite party omits or fails to take any action to represent his case within the time given by the Forum; (iii) where the complainant or his authorized agent fails to appear before the District Forum on such day, the District Forum may in its discretion either dismiss the complaint in default or if a substantial portion of the evidence of the complainant has already been recorded, decide it on merits. Where the opposite party or its authorized agent fails to appear on the day of hearing, the District Forum may decide the complaint *ex parte*; (iv) where any party to a complaint to whom time has been granted fails to produce his evidence or to cause the attendance of his witnesses, or to perform any other act necessary to the further progress of the complaint, for which time has been allowed, the District Forum may notwithstanding such default:

- (a) If the parties are present, proceed to decide the complaint forthwith or
- (b) If the parties or any of them is absent, proceed as mentioned above in (b) (iii);
- (v) The District Forum may, on such terms as it may think fit at any stage, adjourn the hearing of the complaint but not more than one adjournment shall ordinarily be given and the complaint should be decided within 90 days from the date of notice received by the opposite party where complaint does not require analysis or testing of the goods and within 150 days if it requires analysis or testing of goods.

Actual time taken is more but still much lesser than civil / criminal hearing.

The District Forum is also vested, under section 13(4) with the powers as are vested in a civil court under the Code of Civil Procedure, 1908 while trying a civil suit in the matters relate to:

- (i) The summoning and enforcing attendance of any defendant or witness and examining the witness on oath; (ii) the discovery and production of any document or other material object producible as evidence; (iii) the reception of evidence on affidavits; (iv) the requisitioning of the report of the concerned analysis or test from the appropriate laboratory or from any other relevant source; (v) issuing of any commission for the examination of any witness; (vi) any other matter which may be prescribed (by the rules)

Additional powers: The National Commission, State Commission and

District Forums are also vested with additional powers, under rule 10 of the Consumer Protection Rules, 1987, to require any person:

1 (a) To produce before, and allow to be examined and kept by an officer of the National Commission, the State Commission or the District Forum, as the case may be, specified in this behalf, such books, accounts, documents or commodities in the custody or under the control of the person so required as may be specified or described in the requisition, if the examination of such books, accounts, documents or commodities are required for the purpose of this Act. (b) to furnish to an officer so specified, such information as may be required for the purpose of this Act.

2 (a) Where during any proceedings under this Act the National Commission, the State Commission or the District Forum, as the case may be, has any ground to believe that any book, paper, commodity, or document which may be required to be produced in such proceeding are being, or may be destroyed, mutilated, altered, falsified or secreted it may, by written order authorize any officer to exercise the power of entry and search of any premises. Such authorised officer may also seize such books, papers, documents or commodities as are required for the purpose of this Act: provided that such seizure shall be communicated to the National Commission, the State Commission or the District Forum, as the case may be, as soon as it is made or within a period not exceeding 72 hours of making such seizure after specifying the reasons in writing for making such seizure; (b) The National Commission, the State Commission or the District Forum, as the case may be, on examination of such seized documents, or commodities, as the case may be, may order the retention thereof or may return it to the party concerned.

If, after the proceedings, the District Forum is satisfied that any of the allegations contained in the complaint about the medical services are proved, it shall issue an order to the opposite party directing him to do one or more of the following things: (a) to return to the complainant the charges paid; (b) pay such amount as may be awarded by it as compensation to the consumer for any loss or injury suffered by the consumer due to the negligence of the opposite party; (c) to remove the deficiencies in the services in question; (d) to provide for adequate costs to parties

Any person aggrieved by an order made by the District Forum may appeal against such order to the State Commission within a period of 30 days from the date of knowledge of the order. The State Commission may entertain an appeal after 30 days if it is satisfied that there was sufficient cause for not filing it

within that period. The appellant would have to deposit 50% of the amount or Rs. 25,000 whichever is less.

State Commission shall consist of (a) a person who is or has been a Judge of a High Court, who shall be its President; (b) two other members (as for District Forum)

The state Commission has jurisdiction: (a) to entertain (i) complaints where the value of services and compensation claimed exceeds rupees 20 lakhs but does not exceed rupees 1 crore; (ii) appeals against the orders of any State Commission; (b) to entertain revision petition against the State Commission.

Any person aggrieved by an order made by the State Commission may appeal against such order to the National Commission within a period of 30 days. The National Commission may entertain an appeal after 30 days if it is satisfied that there was sufficient cause for not filing it within that period. No appeal by a person, who is required to pay any amount in terms of an order of the State Commission, shall be entertained by the National Commission unless the appellant has deposited 50% of the amount claimed as compensation or Rs. 35,000, whichever is less.

A complaint containing the following particulars shall be presented by the complainant in person or by his agent to the **National Commission** or be sent by registered post, addressed to the National Commission:

(a) the name description and the address of the complainant; (b) the name, description and address of the opposite party or parties, as the case may be, so far as they can be ascertained; (c) the facts relating to the complaint and when and where it arose; (d) the relief which the complainant claims

The remaining procedure and the procedure for hearing the appeal is similar to that for State Commission.

Any person, aggrieved by an order made by the National Commission, may appeal against such order to the Supreme Court within a period of 30 days from the date of the knowledge of the order. The Supreme Court may entertain an appeal after 30 days if it is satisfied that there was sufficient cause for not filing it within that period.

Limitation Period: The District Forum, the State Commission or the National Commission shall not admit a complaint unless it is filed within 2 years from the date on which the cause of action has arisen. In case there are sufficient grounds for not filing the complaint within such period, extension may be granted, after recording its reasons for condoning such delay.

Dismissal of Frivolous or Vexatious Complaints where a complaint instituted before the District Forum, the State Commission or the National Commission, as the case may be is found to be frivolous or vexatious, it shall, for reasons to be recorded in writing, dismiss the complaint and made an order that the complainant shall pay to the opposite part such cost, not exceeding 10,000 rupees, as may be specified in the order.

Penalties: Where a person against whom a complaint is made or the complainant fails or omits to comply with any order made by the District Forum, The State Commission or the National Commission, as the case may be, such person or complainant shall be punishable with imprisonment for a term which shall not be less than one month but which may extend to 3 years, or with fine which shall not be less than 2000 rupees but which may extend to 10,000 rupees, or with both. In exceptional circumstances the penalties may be reduced further.

PART - 2

Negligence in Medical Care- Categories:

Negligence in medical care may broadly be classified into four categories. Examples given hereunder are only illustrative. Most of the examples have been formulated after referring to Indian and Foreign decided cases:

- ▶ Medical negligence at the level of doctor / paramedical staff / hospital authorities. Liability for negligence may be fixed at individual level and / or jointly or vicariously where hospitals / nursing homes are involved.
- ▶ Negligence at the level of patient himself or his attendant also known as contributory negligence.
- ▶ Negligence at the level of manufacturers of drugs, equipment, etc and dispensers.
- ▶ Composite negligence, i.e. at more than one of the above three levels.

Medical negligence at the level a doctor / paramedical staff / hospital authorities may be further divided into the following nine groups:

- (i) Professing / holding out / performing beyond level of competence
- (ii) Failure to attend or treat
- (iii) Errors in diagnosis
- (iv) Failure of advice and communication
- (v) Errors in treatment
- (vi) Mental cases

- (vii) Dentists
- (viii) Liability to third parties
- (ix) Vicarious liability

Professing holding out/ performing beyond level of competence: For doctors/ paramedical staff competence is determined by qualifications, training and experience. For hospital, it means proper premises, competence of staff, equipment in working order, emergency service, administrative support etc. Undertaking a case which is beyond level of competence or facilities available amounts to negligence.

- ▶ Errors in diagnosis failure to take full medical history
- ▶ (e.g. penicillin, contrast media); treatment history, history of anti-tetanus
- ▶ *Instances of palpably wrong diagnosis are: can be missed fractures / foreign bodies / dislocations; etc.*
- ▶ *Instances of Failure to revise initial diagnosis are like :* appendicitis with initial diagnosis of gastroenteritis. Failure to consult or refer patient to a specialist like a general practitioner / general surgeon failing to refer a case of severe fracture of the ankle to an orthopaedician (if available);
- ▶ *Over testing / unnecessary testing like* asking for blood tests and x-ray in a case of common cold with no complications ;
- ▶ *Failure of advice and communication* to obtain valid consent or Failure to warn about which sterility may not be achieved immediately after vasectomy etc.
- ▶ *Errors in treatment* Miscalculating drug doses, adverse reactions and major drug interactions; etc.
- ▶ obstetrical errors ; usually related to : prescribing drugs which can harm the foetus during pregnancy

Liability to third parties: A person with a highly contagious disease kept with other patients in the same room or ward resulting in contracting the disease by other patients will give rise to action by third parties (such other patients) against doctor's negligence.

Negligence at patient's or attendant's level (contributory negligence): It is worthwhile to remember that if the patient fails to follow a doctor's advice, and this is a cause of his injuries / complications, it will be possible to argue that the patient has been contributorily negligent, or in an extreme case, that his conduct is the sole cause of damage. Contributory negligence is measured by the standard

of the reasonable, prudent man, of similar education acting in similar socio-cultural environment. Contributory negligence must be specifically pleaded. If it is not pleaded it is not open to the court to find that the plaintiff has been contributorily negligent.

Negligence at manufacturers and dispensers level :It covers manufacturer of drugs, IV fluids, vaccines, equipments etc. (other laws also applicable) and/ or medical stores / druggists for dispensing drugs etc. which are different from these prescribed or are of expiry date

Composite negligence occurs at more than one level. Some instances are :

- ▶ A doctor or nursing staff not checking infusion bottle or injection for fungus / impurities/ foreign matter before use thereof would imply negligence of both the manufacturer and the doctor
- ▶ A doctor writing an illegible prescription and a chemist giving a wrong drug to the patient without checking with the doctor, would constitute negligence both of the doctor and the chemist.
- ▶ Negligence in a medical camp : at the level of organizers of the camp, the operating doctors, nursing staff and the manufacturers of medicines used in the camp is another example of composite negligence.

PART 3

Prevention Against Litigation

In view of the Supreme Court affixing its seal of approval on the applicability of the Consumer Protection Act to the services provided by the medical profession, it has become all the more imperative for the medical professionals to exercise a, greater degree of caution while undertaking diagnosis and treatment of patients. It is, therefore, felt necessary to make the doctors aware of certain precautions which ought to be taken to minimize risk of litigation. Preventive steps could taken at four different levels: Level I, Primary prevention would protect against a complaint being filed; Level II, Secondary prevention would protect against the defendant (doctor/hospital) from being held negligent; Level III, Tertiary Prevention would protect against direct financial consequences in case compensation is awarded; and Level IV, Quartic Protection would protect against professional and psychological stresses of litigation.

Level I (Primary Prevention)

Human element in medical care determines the patient's / attendant's

reaction to an untoward event. Sources of discontent, such as, tactless handling, trivial indignation or casual unpleasant remarks, etc., are the causes of a large number of complaints filed against doctors and hospitals. Behavior of the entire system including receptionist, junior staff, ward boys, sweepers etc., should be continuously monitored especially in stressful circumstances. "Commercial attitude/ behavior" should be discouraged. Prescription heads, sign-boards, advertisements should mention true qualification, training, experience designation and facilities. Guarantee of results should be avoided.

It is desirable that all the queries of the patients/ attendants are answered without objecting to their repeated questioning. The doctor should be brief, to the point and clear in his articulation and language and should maintain moderate behavior and calm face even while rebuking them for their inattentiveness, carelessness, etc. He should not mind their seeking clarifications about the diagnosis/ treatment. He should not be adverse to any suggestion of seeking a second opinion. Doctors, who are open-minded and communicative are much less likely to be complained against as patients/ attendants generally are extremely forgiving of errors made by a friendly and concerned medical practitioners.

A high proportion of complaints are precipitated or escalated into legal action by a progressive breakdown of the doctor-patient communication. Try to bear in mind the mental state of the close relatives/ friends. Be compassionate. Be careful, while informing about 'functional cases', 'bad news' and remember not to refuse patient's right to examine and receive an explanation about the bill. The doctor, in addition to being aware of his own duties towards a patient, should also remain conscious of a patient's rights vis-a-vis a doctor.

There is need to educate the public about the limitations of medical science and the inherent risks involved in surgical and medical treatment of any persons. Such information may be provided in the prescriptions, discharge cards, on the notice boards or prominent places in clinic and hospitals or by distributing pamphlets, etc. In order to keep up with the 'current accepted practice' doctors and staff should update their knowledge and skills, and facilities should be updated according to the claims made by the clinic/ hospital. It is the responsibility of every doctor to keep himself generally informed on mainstream changes in diagnosis, treatment and practice through the mainstream literature, such as the leading textbooks and the leading journals of his specialty. A doctor cannot realistically be expected to read every article in every learned medical journal, or to acquaint himself with the contents of the more obscure journals, yet

there is an obligation on him to make a reasonable effort to keep up-to-date, e.g., where a particular risk has been highlighted on a number of occasions the doctor will ignore it only at his own peril. Knowledge of medical ethics and laws in practice of medicine is very useful in improving practicing methods of doctors. Big nursing homes and hospitals could constitute "Grievance Redressal Cells" to tackle a potential problem of dissatisfaction on the spot.

Level II (Secondary Prevention)

Key steps include (i) Exercising reasonable skill and care in diagnosis and treatment; (ii) Proper documentation and (iii) Legally valid consent. Three aspects of reasonable skill and care include Medical, Social and legal aspect.

Medical aspect: First and foremost it is imperative for every doctor/ medical establishment to exercise reasonable skill and care expected of an average person with equivalent qualifications and experience in similar circumstances. Doctors have been blessed by God and bound by the Hippocratic & Charak's Oath to do so with each and every patient, and they must perform this sacred with head and heart.

Social aspect: Another aspect of reasonable skill and care is exhibiting this to the patient/ attendants/ relatives/ visitors through expressions, actions and discussions on the part of the doctors. There must be visible and palpable. Remember that a doctor may be very sincere about his patient, but failure to exhibit this may lead to doubts in the mind of the patient/ attendants.

Legal aspects: This involves proper documentation and record-keeping the doctor/ hospitals exercising reasonable skill and care in consultation, diagnosis and treatment of the patient. A proper documentation of the date, time and history (in brief), positive physical findings, investigations, treatment and instructions to the junior staff and the patient is necessary. Record history of drug allergy; take care of your hand-writing, major drug interactions, mention where patient should contact in case of your non-availability/ emergency, 'diagnosis under review' until the diagnosis is finally settled, and to rule out a certain disease. Write investigations asked for on the same slip. Record referrals properly.

Preservation of record: Ordinarily, hospitals and nursing homes would preserve records of patients for not less than 3 years, so that when a case is filed: (i) under the CP Act, where the limitations for filing a complaint is 2 years; (ii) or under law of tort, where the limitation is 3 years, record can be produced in defense of your case, or it may be required to be produced by the consumer forum or civil court but in new-born cases, this should be preserved for not less than 3 years after

the child attaining majority age of 18 years, the reason being that such minors cause of action subsists upto 2 years after attaining majority under the CP Act and upto 3 years under the civil law.

Legally valid consent: In a large number of cases filed against the doctors, it is alleged that no consent was obtained. Obtaining of a consent will thus be a cornerstone of protection against litigation. Experience shows that some of the consents being obtained in private and government hospitals & nursing homes are held by the courts to be not legally valid. Hence, the necessity of obtaining a legally valid consent from the patient/ parent/ guardian/ attendant, need hardly be emphasized. Depending upon the circumstances of each case consent may be implied, express, informed or proxy.

Implied consent (tacit consent): This is by far the most common variety of consent in both general practice and hospital practice. The fact that a patient comes to a doctor for a ailment implies that he is agreeable to medical examination in the general sense. This, however, does not imply consent to procedures more complex than inspection, palpation, percussion, auscultation and routine sonography. For other examination, notably rectal and vaginal and withdrawal of blood for diagnostic purpose, express consent (oral or written) should be obtained. for more complicated diagnostic procedures, e.g., lumbar puncture, radiology, endoscopy, CT Scan, etc., express written consent should be obtained.

Express consent: Anything other than the implied consent is express consent. This may be either oral or written. Express written consent is to be obtained for: (i) all major diagnostic procedures; (ii) general anesthesia; (iii) for surgical operations; (iv) intimate examinations; (v) examination for determining age, potency and virginity; and (vi) in medico-legal cases.

Informed consent: The concept of informed consent has come to the fore in recent years and many actions have been brought by patients, who alleged that they did not understand the nature of the medical procedure to which they gave consent. All information must be explained in comprehensible non-medical terms preferably in local language about the: (i) diagnosis; (ii) nature of treatment; (iii) risks involved; (iv) prospects of success; (v) prognosis if the procedure is not performed; and (vi) alternative methods of treatment. The physician's duty to disclosure is subject to the exception: (i) if the patient prefers not be informed; and (ii) if the doctor believes in the exercise of coming to a sound medical judgment, that the patient is so disturbed or anxious that the information provided would not be processed rationally or that it would probably

cause significant psychological harm. This known as therapeutic privilege. In such a case, it is advisable that the doctor should consult the patient's family physician. Revelation of risk is always a compromise between reasonable information and the danger of frightening off the patient from beneficial treatment.

Proxy consent (substitute consent): All the above types of consent can take the shape of Proxy Consent, e.g., parent for child, close relative for mentally unsound/ unconscious patient, etc. It should be remembered that consent given under fear, fraud or misrepresentation of facts, or by a person, who is ignorant of the implications of the consent, or who is under 18 years of age is invalid. Obtaining a 'blanket' consent on admission for unspecified procedures does not have legal validity. The consent form should be signed before the treatment is started. The format of the consent as far as practicable, should be in local language.

Level III (Tertiary Prevention)

Professional Indemnity Insurance: To meet the claim of compensation, which may be awarded against a doctor for medical negligence, which is called deficiency in service under the Consumer Protection Act, 1986, it has now become essential for every doctor to obtain a Professional Indemnity Insurance cover from any one of the Insurance Companies. It is essential for government doctors and hospitals, who are practicing or providing private facilities on payment to obtain this Insurance Cover.

Level IV (Defending litigation by Forming)

Medical Defense Societies and Strong Peer Support: The professional, social and psychological stresses of such litigation can be fought only by providing a strong peer support and by formation of medical defense organizations/ societies at the local, state and national levels for assisting in such situation. If necessary these defense organizations should take up defense on behalf of doctors against whom, there are complaints. However, no attempt should be made to defend cases of gross negligence or glaring deviations from the accepted norms of Code of Ethics for medical professionals.

Further Reading

Medical Negligence and Compensation, Ed.: Dr. Jagdish Singh, Vishwa Bhushan, Third Edition, 2004 Bharat Law Publications, Chaura Rasta, Jaipur.

Behavior Change Communication for Health

Vishal Singh

The letter BCC refers to the words Behavior Change Communication. The letter IEC refers to the Information, Education and Communication. BCC is an important concept and a set of communication activities.

IEC has always been a significant component of health interventions. Now there is a change in approach of family welfare. Focus of IEC shifts from information dissemination and awareness generation to communication for behavior change. Within RCH a paradigm shift in context of IEC is in vogue. In RCH-1 the focus of the programme was based on approach of client centered, demand driven services- needs strategic communication to work as a tool to create demand for quality services. Under RCH-II there a total shift from input orient outcome orient. To achieve the desirable results in RCH-NRHM, BCC is the critical strategy.

BCC can be defined as “the process of understanding people's situations and influences, developing strategies that respond to concern in those situations, and using communication process and media channels (including human relation and messages) to persuade people to increase their knowledge and change the behavior and practice which place them at risk or place others at risk. Focus of BCC on the individuals includes i.e health care provider or clients who need to develop the positive health seeking behavior. BCC is a tool or a strategy not a programme. Many times in the field BCC or IEC is considered as independent programme.

BCC are parts of advocacy interventions. In order to influence decision makers, one has to also change these groups' own knowledge and perceptions of the issues, and recommend them to adopt new practices and decision. BCC interventions serve as vehicles for enhancing the effectiveness and sustain ability of other interventions in a health program. It is equally applicable in all program such as- reproductive health, HIV, AIDS and other public health problems such as TB, Malaria, Dengue, Blindness, etc.

BCC is always relying on communication tools and activities, and on various persuasion techniques and appeals. Aims of BCC are to change the individual attitude and behavior of client or user of services, as well as their

beliefs and norms in terms of life style. .

BCC Activities under RCH-II and NRHM

RCH-II advocates using multi-Channel activities, various mass media channels of communication (television, radio, print, for example) and more localized "folk" media as well as reinforcing message by inter-personal communication (IPC).. The purpose of IPC is to speak directly to individuals and small group with empathy and respect; thus reinforcing BCC by increasing its relevance in everyday life.

Best practices for BCC

Branding means much more than just having logo; it should ensure that all parts of the program are unified. "Reproductive and Child Health" says little, if anything, to the general population. A brand should relate to what is being offered to the consumer and provide a promise. It must be visible in BCC materials, on uniforms of workers, equipment and vehicles, banners and wall paintings.

Constant Media pressure is feature common to all successful public and private programs. A limited number of BCC messages must be presented regularly and in different ways so that the audience becomes familiar with the issues and begins to internalize them.

Multiple Influence and influencers are needed to make BCC strategies effective. For example, mother-in-law are known to influence the birth spacing behavior of married couples, especially in rural areas. They also play a significant role in pregnancy, delivery and infant nutrition, perhaps discouraging immediate and exclusive breastfeeding. However, having said that, mother-in-law can be an important target group for BCC for young mothers.

Behavior Change Communication in RCH- 2

The core objective of BCC in the RCH-2 is to "encourage individuals, families and communities to make informed decision concerning reproductive and child health through a program of health communication which facilitates behavior change". BCC as a strategy will be positioned to encourage behaviors that are doable in the context in which people live and are also amenable to change. It will be characterized by its direct approach to changing behavior. The transformation through BCC in stages would involve receiving information, processing/understanding the received information, changing health behavior and finally health seeking behavior level.

Some Success stories

Goli Ki Hamjoli was an effort to expand oral contraceptive use in urban setting. BCC was aimed at stimulating demand neutralizing attitudes, orienting pharmacists and encouraging manufacturers to widen distribution. A combination of advertising, public relation, outreach, direct contact and advocacy for policy change over a period of five years led to an increase in the daily use of pills from 6% to 11%.

SIFPSA's tetanus toxoid campaign in UP demonstrates how results can be achieved on a substantial scale even under circumstances that are not conducive to behavioral change. SIFPSA and the State Government developed a communication strategy to encourage some 2.5 million pregnant women across the entire state to take two doses of tetanus toxoid (TT). A Combination of mass media, local media and home visits covered 100,000 villages and 700 urban centers. In two years, the proportion of pregnant women receiving two doses of TT increased from 33% to 68%. An important factor in this success was the role played by NGOs.

Gol's Polio eradication campaign is a good example of a communication strategy and media pressure to reinforce existing behavior. In order to achieve the national goal of eliminating polio a saturation campaign has been adopted. All mass media, a wide range of local media and social mobilization method have been used to create word-of-mouth support and encourage parents to bring their children to immunization centers. India's most widely recognized movie star, Amitabh Bachchan, has become a spokesperson for the campaign.

Balbir Pasha HIV/AIDS campaign : BCC can be successful even if the topic is difficult to address in public and the audience does not adequately recognized the problem. The campaign launched by PSI aimed at increasing awareness of risk among men, by generating word-of-mouth discussion and encouraging men to seek Voluntary Counseling and Testing (VCT) service. The proportion of men visiting commercial sex workers were at high risk of HIV. They had unprotected sex with a non-commercial partner. Persuading them through skit led to increase from 17% to 43% in safe sex.

The JANANI social franchising program in Bihar and Jharkhand is a good example of communication strategy used to support the social marketing of a range of services rather than products. Rural medical practitioners were trained to conduct simple tests, such as those for pregnancy and blood pressure. It was Franchised as a "Titli" (butterfly) center. Since pills and condoms are low profit margin items and unattractive to retailers in rural areas, Janani bunani bundles

them with a profitable basket of service and require franchisees to carry the full range of service. In urban areas doctors undergo training and run "Surya" clinics primarily offering family planning service, including medical termination of pregnancy (MTP). In the last three years, the program has delivered 1.2 million couple years of protection (CYP) which amounts to 15% of the total CYP.

SADHAN- A campaign conducted by PSI for improving the social marketing of contraceptives, specially the E-Pill is one of the successful example of BCC campaign in Rajasthan. Logo of key visible at any private health facility is indicative of counseling and contraceptives available then and there.

Guinea worm Eradication Campaign- In southern Rajasthan, the eradication of guinea worm disease has been an achievement of global significance. It demonstrates the impact of combining indigenous medical traditions, social mobilization and communication skills. The experience and abilities of village-level functionaries (including ANM, Anganwadi workers, Sahyogini, literacy *preraks*, self-help groups) offer a major resource of trained functionaries with a basic sensitivity to IEC.

People at different stage constitute distinct audiences. Thus they usually need different messages and sometime different approaches, such as interpersonal communication, group communication and mass media. Under the direct approach, the BCC strategy would utilize multiple channels to transmit and reinforce message that address well-defined target group to change their current behavior. This is done by providing skill, tools and human resources leading to better maternal and child health. It also means creating a supportive environment that helps people adopt and maintain the desired behavior for better health outcomes. BCC is thus a process that promotes positive change in individuals and the environment.

Key themes for BCC interventions under RCH -2

The term "reproductive and child health" covers a wide range of health behaviors and services. Therefore, a wide range of key issues would need to be addressed, including maternal health, child, neo-natal health care, immunization, role of village health workers, unmet needs of contraception, spacing methods, adolescent health and nutrition need, age at marriage, breastfeeding etc. Priority target group are extremely important as they constitute the core of all strategic decision making. These groups include: Service provider in the public and private sector; Panchayat, religious and other village leaders; Mothers-in-law; Adolescents; Couples with one or more children; Couples wishing to have

no more children. Secondary target groups include key functionaries and stakeholders in related departments and media.

Communication framework and tools under BCC

A Communication strategy comprises of a bag of tools or a toolkit to choose from. The challenge is to choose the best combination of tools to follow the strategic approach and achieve the objectives.

Advocacy: A set of tools used to create a shift in public opinion and mobilize necessary resources and focus to support an issue.

Advertising: A set of tools to inform and persuade in a controlled setting through paid media, such as television, radio, billboards, newspaper, and magazines.

IPC enhancement: A set of tools that can enhance personal interaction between clients and providers, including discussion within and outside the clinic. It includes not only training of the information providers, but also enhancing the place where the communication takes place.

Community participation: A set of tools meant to help a community to actively support and facilitate the adoption of a desired behavior.

Interpersonal channels which include one-to-one communication, such as provider to client, spouse-to-spouse, or peer-to-peer. Community-based channels, which reach a community (a group of people within a distinct geography viz a village or neighborhood; or a group based on common interests or characteristics, such as ethnicity or occupational status). Communication could be through:

Community-based media, such as local newspaper, radio station, bulletin boards and posters.

Community-based activities, such as health fairs, folk theatre, concerts, rallies and parades.

Community mobilization, a participatory process of communities identifying and taking action on shared concerns. The Center will take responsibility for the overall strategy development process for BCC within RCH-2, with the full involvement of state administrations. The center will oversee and monitor BCC action undertaken by the states and also track their impact. It is proposed that district action plan prepared in NRHM will incorporate dissemination of information sensitization and awareness building; utilization of folk media and other local channels of communication; convergence of the efforts of related departments; and enhancement of the

capabilities of relevant staff within the district.

IEC-BCC in Rajasthan : IEC Bureau, Rajasthan established in the year 1990 was the first example in India to take a move toward professionalizing health communication. Bureau was expected to make a profound impact on health programmes and goals. Eventually it was a move towards enhancing community health through changing behavior of people of Rajasthan.

The objective of IECB was to initiate and sustain a professional, strategic communication approach to replace the preoccupation with media products which has come down through a long history of so-called audio-visual activity in India. Rajasthan called for a fresh understanding of communication as the social process of behavior change. The Bureau's mission is to foster communication research, situation analysis, audience understanding and segmentation, and the media skills for dialogue with which such a strategic approach could encourage and sustain behavior change. These objectives are revolutionary not only in the context of health communication in but in the wider context of social communication since Independence. The principal activity of the IEC Bureau today focused on implementation of RCH communications activities. Funding support for this communication activity includes supports from the NRHM.

The Jan-Mangal campaign targeted at newlyweds and the Nirmaya journal have continued with apparent success for more than a decade, relying on very meager human resources available to the Bureau today. There is no sanction for filling the large number of posts now vacant within the Bureau. Despite these difficulties, Bureau leadership indicated its efforts to focus on issue based IEC. Some of the focus issues are prevention of early or child marriage, small family happy family, Averting maternal and child deaths by popularizing the services as well as discouraging gender discrimination (particularly pre-natal sex selection). The Bureau would like to direct priority attention to weaker sections of both rural and urban communities, and to promote issues of personal hygiene, waterborne diseases, and positive health knowledge derived from indigenous tradition.

Several other health achievements have taken place outside the Bureau, each with its own IEC effort. Malaria, TB, seasonal diseases, and leprosy awareness and eradication efforts are cited as examples. In southern Rajasthan, the eradication of guinea worm disease has been an achievement of global significance, which demonstrates the impact of combining indigenous medical traditions, social mobilization and communication skills. The experience and abilities of village-level functionaries (including ANM, Anganwadi workers, ASHA *Sahyoginis*, literacy *preraks*, self-help groups) offer a major resource of

trained functionaries with a basic sensitivity to IEC. Indigenous media culture is perhaps nowhere stronger than in Rajasthan. This has assisted the exercise of a range of media options. It includes the imaginative use of local skills such as drum-beaters, puppeteers and singers enlarging the pool of media experience. New opportunities are opening through information technology, which include the forthcoming Gram-Sat video/radio prospect. Village contact drives (VCD) have sensitized a large number of workers in field mobilization and communication techniques. VCDs were initiated during last phase of guinea worm eradication. They were subsequently conducted in WATSAN Project. CSSM project, EMCF and now RCH-2

State has believed that BCC should be developed based on research. RHSDP sponsored EPOS a study to develop the Integrated Communication Plan has suggested various core strategies for the state. A State level communication management agency is to be set up. Focus has been given into the IPC interventions. Following are the focus area of BCC in RCH-2:

- ▶ Prevention of Early/childhood marriages
- ▶ Promotion of dignity of girl child and enforcement of PC-PNDT Act
- ▶ Averting maternal disease and deaths
- ▶ Promotion of contraception and by ensuring the male participation.

The Lok Kala Mandal , Udaipur and Dramtic Department of University of Rajasthan will facilitate the folk media campaign under NRHM.

Attributes of Effective Health Communication

For the effective and successful Behavior Change Communication effectiveness of the process of communication is to be ensured. There are few attributes responsible for the result based BCC. The person involved in BCC specially at planning level should always remind the following stapes, while developing the BCC Plan.

Accuracy: The message which is going to be disseminated to the targeted group through any kind of material should be content wise authentic. The information content should be valid and without error of fact, interpretation, or judgment.

Availability: The Content (whether targeted message or other information) is delivered or placed where the audience can access it. Placement varies according to audience, message complexity, and purpose, ranging from interpersonal and social networks to billboards and mass transit sign to prime time T.V.

Balance: Where appropriate, the content presents the benefits and risks of

potential action or recognizes different and valid perspectives on the issue.

Consistency: The content remains internally consistent over time and also consistent with information from other sources (the latter is a problem when other widely available content is not accurate or reliable)

Cultural Competence: The design, implementation, and evaluation process that accounts for special issues for select population groups (for example, ethnic, racial and linguistic) and also educational levels and disability.

Evidence base: Relevant scientific evidence that has undergone comprehensive review and rigorous analysis to formulate practice guidelines, performance measures, review criteria, and technology assessment for telehealth applications.

Reach: The content gets to or is available to the largest possible number of people in the target population.

Reliability: The source of the content is credible, and the content it self is kept up to date.

Repetition: The delivery access to the impact with a given audience and to reach new generation

Timeliness: The content is provided or available when the audience is most receptive to or in need of the specific information.

Understandability: The reading or language level and format (including multimedia) are appropriate for the specific audience.

Rajasthan Health Systems Development Project

Avtar Singh Dua

Need

Over the last few decades, there has been a substantial expansion in healthcare infrastructure in Rajasthan. As of December 2006, there are 10,512 subcentres, 1,488 PHCs, 325 CHCs and 120 hospitals (including Medical College Hospitals) in the State that cater to the health and medical care needs of the people. This vast infrastructure has been created keeping in mind the almost three-fourths population living in rural areas spread far and wide, and focusing on providing health care services to the people based on the primary health care approach backed by good quality secondary and tertiary health care services.

Ever since the launch of Child Survival and Safe Motherhood (CSSM) Programme in the early 1990's, significant inputs have gone in for strengthening primary health care services provided through PHCs and subcentres. There had been some inputs for strengthening secondary health care services at CHCs and identified First Referral Units (FRUs) both under CSSM and RCH Project. However, these inputs to CHCs were not adequate and there were practically no inputs (in addition to the routine budgets, which are often marginal) to District Hospitals, which significantly affected the quality of health services at secondary level institutions.

It is against this background that World Bank financed Rajasthan Health Systems Development Project (RHSDP) worth Rs. 472.6 crores was started in the State in July 2004 for five years for improving the quality of services at secondary level health facilities. Thus RHSDP is essentially a project to strengthen secondary health care facilities in Rajasthan which implies District Hospitals, Sub divisional hospitals and CHCs.

Objectives

The project contributes to the overall goal of the health sector in Rajasthan of improving the health and nutritional status of the population, in particular the vulnerable groups. The project targets the poor, particularly

women, scheduled castes and scheduled tribes (SCs/ STs), most of whom reside in remote and difficult hilly and desert regions. The broad objectives of the project are:

- ▶ To increase access to and equity in health care service delivery with particular focus to the underserved sections.
- ▶ To enhance the effectiveness and quality of health services at the primary and secondary levels through policy and institutional development.

Interventions

(A) Physical Renovation and up-gradation of District Hospitals, Sub-divisional Hospitals, CHCs and Block PHCs: At the time of planning for the project, there were 343 secondary level institutions in the State having a sanctioned bed strength ranging from 30 to 300 in-door beds. There are 237 *Panchayat Samitis* (blocks) in the State and Government of Rajasthan had decided to make functional a 24-hour functional emergency health facility in each block of the State with the aim of improving the access of the people, especially living in rural areas, to good quality health care services. It was envisaged that these facilities would be developed in a phased manner. 237 facilities out of the 343 secondary level facilities were selected for renovation / extension under RHSDP i.e., one in each *Panchayat Samiti*. The secondary level facilities identified for strengthening under RHSDP include 28 district hospitals, 23 sub-divisional level hospitals, 113 CHCs at sub-divisional level, 72 CHCs within a block, and 2 Block PHCs. Civil works under the project include renovation / repairs / extension of the existing building; the areas covered are approach to the hospital, OPD blocks, waiting rooms, toilets, wards, deep burial pits for waste disposal among others as per the requirements of individual hospitals.

(B) Improving Health Care Waste Management System: Over the last one decade, there has been a lot of emphasis on hospital acquired infections giving rise to the concept of *infection prevention*. Of the total hospital waste generated, approximately 10 percent is hazardous, 85 percent is general (non-risk) waste, while a small percentage (5 percent) is labeled as highly hazardous. The composition of the waste differs with respect to its size, nature of services, and location. Government of India promulgated the Bio-medical Waste (Management and Handling) Rules, 2000 which detail good practices to be followed and the roles and responsibilities for all those concerned in the generation and effective disposal of health care waste. Interventions for proper

hospital waste management are being implemented in all 343 secondary level facilities under the project and include the following activities:

Construction of deep burial pits / storage spaces in all institutions as per their need: In vast majority of the secondary level health facilities, deep burial pits of three different sizes (depending on the number of indoor beds) have been constructed under the project. Two pits of same size have been constructed side-by-side one with cemented floor (for blue bags and their contents) and one with loose soil floor (primarily for yellow bags and their contents). The size of the pits has been so planned that they meet the waste disposal needs for two years.

Supply of different colour-coded bins (red, yellow, blue and black) and colour-coded bags: These have been provided for proper segregation of biomedical waste at the point of generation of waste.

Supply of other protective gears and equipments (caps, gowns, face masks, gloves, rubber boots, brushes): These have been provided to waste handlers to protect them from getting hospital acquired infection.

Supply of wheel barrows: These are being provided for transporting the segregated waste from different sites in the hospitals to the deep burial pits / storage spaces.

Supply of plastic shredders: These are being provided for preventing reuse of non-cycled, infectious plastic waste.

Printing and supply of HCWM Protocols and other IEC material (posters / charts / flexi-sheets of four different colours): Flexi-sheets of four different colours having standardized messages as to what kind of waste is to be put in which colour-coded bag/bin have been supplied to the facilities for display above each bin for facilitating the process of segregation of waste. Similarly, charts and posters on different kinds of waste and their segregation have been provided to the hospitals for increasing the awareness of service providers on the need for proper handling and management of biomedical waste. Protocols regarding biomedical waste have also been supplied to all facilities.

Follow-up with Rajasthan Pollution Control Board (RPCB) regarding *authorization* of secondary level health facilities for handling biomedical waste: Till some time back, authorization to hospitals for handling biomedical waste was issued by the Jaipur headquarter office of RPCB. Now the process has been decentralized by RPCB and their regional offices have been authorized to issue *Authorization Certificate for Handling Biomedical Waste* to facilities having less than 75 indoor beds. The facilities now require to simply apply to the respective

regional offices of RPCB for authorization.

Common Treatment Facility (CTF) for disposal of waste implies a place where all waste of an urban area is disposed off. By the end of 2006, it has been decided to develop CTF in eleven cities. Funds for hiring the services of CTFs are being provided under RHSDP subject to a maximum of Rs. 1,000 per bed per year.

(C) *Upgrading Quality of Clinical Management and Support Services:* A common observation over the years has been that in the first instance people prefer to go to the private sector this observation is more pronounced for outpatient care than inpatient care. The most common reason cited for this observation is the relatively poor quality of services in public sector hospitals inconvenient hospital timings (facilities not functional for 24 hours), lack of skilled manpower, lack of investigation facilities, non-availability of drugs, *etc.* Along with this, it has been observed that patients and their attendants often face the problems of lack of safe drinking water, lack of proper toilet facilities, non-availability of proper waiting halls, rude behaviour of service providers *etc.* The interventions being implemented for improving the quality of services in identified project facilities include repairs of toilets; providing proper waiting space; one-time repair of equipment; supply of drugs, equipment and providing water coolers and filters to identified institutions. Standard Treatment Guidelines (STG), Essential Drugs List (EDL) and Rational Use of Drugs (RDU) will also upgrade the facilities.

Promoting Teamwork: It had been conceived during the project formulation stage that the success of the project would depend upon teamwork at all levels. Therefore, the project initiated the constitution of two types of teams:

- ▶ Hospital System Improvement Teams at all District Hospitals, Sub-Divisional Hospitals and CHCs
- ▶ Health Systems Improvement Committees in all districts.

(D) *Improving Referral Mechanisms:* Many of the peripheral health care facilities (PHCs and CHCs) are delivering sub-optimal services and there are needless referrals (whether self-referrals or referrals by service providers). It is a dilemma that while many of the CHCs and sub-divisional hospitals remain underutilized, there is great pressure both in OPD and ward) on selected district and all Medical College Hospitals. Thus quality of care on both ends is suffering. Eventually, the patients as well as the Government are incurring needless expenditure in seeking and delivering medical care. An effort is being made under the project for developing and strengthening the *Referral System* right from the PHC to the District Hospital through CHC to the Medical College

Hospital. Following interventions are being implemented in this context:

- a) Referral Protocols to decide the limits of care according to the capacity of a facility. Which level of health facility should deal with an illness episode upto what condition of the patient and when and where to refer a patient with a particular illness. These referral protocols have been printed and supplied to all institutions right from the PHC upto the Medical College Hospitals under RHSDP.
- b) Referral Registers, Referral Cards and Feedback Cards: These have been supplied to all institutions; whenever a patient is referred by a service provider, the referring person is expected to enter the details in the register, along with the reason for referral whether the referral was due to lack of a skilled provider, due to lack of equipment or due to lack of medicines. This information is expected to help identify the gaps for improving the quality of services at the health facilities at all levels.
- c) Training in Referral System: This training has been imparted to treating doctors belonging to different categories of health facilities.

(E) Strengthening Health Management Information System (HMIS) : Information pertaining to medical care delivery by hospitals is received in *Form C to E*. There is a time lag of almost a year in these forms from all districts reaching the State office and understandably, this information is only rarely utilized for assessing the efficiency of hospitals in providing services, and planning for further improvements. Reducing this delay is critical to keeping an eye on the effectiveness and efficiency of hospitals in providing services to the people.

European Commission supported Health sector Investment Programme initiated an integrated HMIS. Modules had been developed by National Informatics Centre (NIC) towards this end. Under RHSDP, intervention for integrated HMIS is envisaged to build upon the work already done under EC-SIP for computerization of an integrated system of HMIS. An Information Systems Strategic Planning (ISSP) study has been assigned by RHSDP. Interventions for improving HMIS in the State will be implemented following the receipt of this report, which would include:

- ▶ Development of a module for training of service providers in HMIS
- ▶ Training of service providers in HMIS
- ▶ Supply of computers to all secondary level hospitals as per need
- ▶ *Computerized Central Registration System* in all secondary level hospitals.

- Online updating of relating to patient care at the respective institutions
- Regular analysis of the monthly reports from hospitals regarding patient care
- Providing feedback to the respective facilities on the observations
- Use of information on patient care for assessing the effectiveness and efficiency of respective health facilities, and for planning purposes

As an interim measure, a format relating to services provided by the hospitals has been given to all facilities in which monthly information on patient care is collected. Feedback on analysis of these reports is being provided to the facility incharges (Principal Medical Officers / Medical Officers Incharge). Timely exchange of information initiated through this process is encouraging.

(F) Strengthening Human Resources: Training and Capacity Building: The skills, both clinical and managerial, of service providers play an important role in the quality of health services. The following trainings are being provided to different categories of service providers for improving their skills:

- **Clinical / Technical Training:** This is being provided to different categories of specialists (general physicians, general surgeons, gynaecologists & obstetricians, pediatricians, anesthetists, etc.).
- **Managerial (Administrative) Training:** To improve the administrative skills of the doctors, training on service rules, General Financial and Accounting Rules, etc. is being imparted so that they can manage their respective institutions in a better way.
- **Hospital Management Information System (HMIS) Training:** This training has not been started so far. A study for integration of HMIS is under way and once the Final Report of this ISSP study is received, this training will be started.
- **Health Care Waste Management (HCWM) Training:** In the first phase, this training was imparted at all facilities having 100 beds or more through an NGO, *Parirakshana, Hyderabad*. The agency imparted hands-on training to all categories of service providers, right from Class IV employees to the PMO, at their respective facilities.
- **Rational Use of Drugs (RUD) Training:** This is being imparted to doctors for promoting the use of *Standard Treatment Guidelines* and for promoting *rational use of drugs*.
- **Equipment Maintenance / Repair Training:** This is being imparted to different categories of technicians to improve their skills in managing minor repairs of equipment, whenever required. This will help ensure regular

functional status of equipment and reduced idle time, which is essential in providing timely care at the appropriate level.

- ▶ **Quality Improvement (QI) Training:** There are numerous dimensions of quality of health services, and one person from each of the identified health facilities has been provided training in quality improvement.
- ▶ **Referral System Training:** For putting a functional referral system in place, this training is being provided to one person from each of the identified secondary level health facilities.
- ▶ **Behavior Change Communication (BCC) Training:** For helping the service providers treat patients (and their attendants) with respect and dignity, this training is being imparted at facility level to all categories of service providers.
- ▶ **Health Systems Improvement Training:** RHSDP has proposed to take up this component on priority in six districts viz Bharatpur, Chittorgarh, Dungarpur, Jhalawar, Jodhpur and Tonk. An orientation of identified service providers in each hospital on this component.

Original implementation plan of the project envisaged that SIHFW shall remain the nodal institute in implementing all trainings. Subsequently trainings were delegated to different agencies. Impact of trainings conducted in different compartments shall be measured over a long period.

(G) Enhancing Access to Care: RHSDP is also working towards increasing access to medical care by:-

- ▶ Disseminating a Citizen's Charter at each facility informing the general public of the services available at the respective facilities.
- ▶ Providing financial support to the RMRS of respective facilities supported under the project.
- ▶ Implementation of the referral system.
- ▶ Organizing health camps in remote PHC areas.

(H) Improving Health Seeking Behavior: While strengthening public facilities for providing better quality health services is important, at the same time, efforts have to be made for increasing the demand for health services by the people. An effort is being made under the project for raising the awareness of people on different diseases / health conditions and it is hoped that these efforts would result in increased utilization of health services. These efforts include: An IEC / BCC Strategy, Promotion of BPL card scheme, Chief Minister's Relief

Fund, Chief Minister's Life Saving Fund, different national health programs, etc.
Organizing Village Contact Drive.

(I) *Public-Private Partnerships:* A study on Private Sector Diagnostic has been conducted to see the geographic distribution of formal private health service providers in three districts of the States spread across the different regions of the State one tribal, one desert and one in plains. This study could provide a lead and could form the basis of public-private partnerships in future for the health and family welfare sector as a whole.

Preparation of Model Contracts: For any public-private partnership to be successful and sustainable in the long run, it has to be a win-win situation for both the public and the private sector. Gradually, with successful implementation of different models of partnership, the government could increasingly assume the role of a funding agency and the private providers could increasingly assume the role of service providers. Thus, the role of the government could then change more towards a regulator than as a service provider. This would require entering into agreement with the private providers for a better partnership. Such agreement could be contracting out of Primary Health Centres; Contracting in of specialist services; supportive services; pharmacy services; diagnostic services; emergency ambulance services.

(J) *Improving Institutional Framework for Policy Development:* RHSDP has also envisaged introducing a bill for regulation of the private sector, wherein it would be mandatory for each private health facility, whether providing curative or diagnostic services, to get registered with the local health authorities. This would help the Government in effectively regulating the costs charged by different institutions for variety of diagnostic and therapeutic procedures.

The Organizational Structure

At State level a project implementation unit (PMU) functioning to implement the project. The PIU have seven cells to support the Project Director in implementation of the project:

- ▶ Strategic Planning Cell
- ▶ Equipment Procurement and Maintenance Cell
- ▶ Engineering (Civil Works) Cell
- ▶ Financial Management Cell
- ▶ Quality and Systems Improvement Cell
- ▶ Human Resources Cell
- ▶ Community Access and Equity Initiatives Cell

A four-tiered structure has been established for successful implementation of the RHSDP which is as follows:

- i. First tier : State Empowered Committee (SEC) chaired by Chief
- ii. Second tier : Project Steering Committee (PSC) chaired by Health
- iii. Third tier : Project Implementation Unit (PIU) headed by Project Director
- iv. Fourth tier : District Project Coordination and Monitoring Committee (DPCMC) headed by Collector At the district level, the CMHO is the Member Secretary of and is assisted by the District Project Coordinator (DPC).

Integration with National Rural Health Mission : RHSDP was initiated in middle of 2004. Subsequently the initiative of UPA Government in the Centre included Rajasthan as one of the focus state in its National Rural Health Mission (NRHM). The later also aims at increasing the access to medical care delivery. Since NRHM has brought in heavy inputs for the health care delivery systems of the state, the need to converge the two projects arose. Under NRHM, all primary and secondary health facilities will be upgraded on Indian Public Health Standards. Thus in Rajasthan, gaps will be identified over the secondary facilities after their upliftment in RHSDP and these gaps shall be filled up through NRHM. Coordination mechanism to develop effective health insurance schemes and contracting out to private partners is on anvil.

The Challenges Ahead

Strategic Planning: While conceiving RHSDP, it was felt that Medical and Health Department has limited planning capacity. A strategic planning cell (SPC) was suggested in this background which was to eventually draw in the planning section of the DM&HS. The SPC was to function as a think-tank and guide in commissioning studies and generate information on different aspects of planning. The activities of the SPC also included monitoring the progress of projects through impact and cost-effectiveness analysis. The SPC was to guide periodic reviews. The PIU could not establish as effective linkages with the existing Planning Cell as expected.

Linkages between the State Directorate and districts: Now that many activities under the project have been streamlined, the challenge for the remaining period of the project is a close linkage between the PIU, district level officials and facility incharges. The project would benefit from an increase in the visits of PIU officials to the districts and to identify health facilities.

Monitoring: There is a need for State level officers from PIU and CMHOs and DPCs to regularly monitor the progress of activities being implemented under the project including effectiveness of inputs for better patient care. Towards this end, a checklist has been provided to the DPCs. Depending on the capacity and commitment of DPC the monitoring will need to improve the quality of health services in their respective districts.

Peer learning: Selected members of District Health Systems Improvement Committee are required to visit identified facilities within the district by rotation and assess performance improvement at the respective hospitals. This systems needs to be strengthened for better teamwork, respect for colleagues and all categories of health personnel, optimal outputs and continuous improvement of services.

Public Private Partnerships: There are plans in the department to involve the private sector in a big way. For a *win-win situation* for both the public and the private sector through these partnerships, there is need of establishing a dedicated team exclusively for public private partnership as separate Public Private Partnership (PPP) Cell should be established in the department that could take up such interventions for the entire department.

Health Insurance: The State government has been contemplating introduction of a health insurance scheme on the lines of Universal Health Insurance Scheme launched by Government of India. It appears that the department lacks the experience and skills for launching such a scheme, and it would be useful for the department to implement a pilot in a defined geographic area and then scale up based on the experience gained through implementation of the pilot.

Major component of HRD also seems to go haywire if there are frequent changes in strategies approved for in-service trainings at the outset of the project.

Further Reading:

World Health Organization: Macroeconomics and Health: Investing in Health for Economic Development. Report of the Commission on Macroeconomics and Health, WHO, Geneva, 2001

Rational Use of Drugs

Adesh Mathur

What is RDU ?

In simplest words it can be defined as "prescribing right drug, in adequate dose for sufficient duration". The main aim of rational therapeutics is to provide maximum possible benefit to the patient by using minimum possible drugs without much financial burden on the patient. Today irrational and injudicious use of drugs is a cause of worldwide concern not only in developing countries but equally in developed countries. Factors that have led to sudden realization for Rational drug use:

- (1) *Growing awareness* - Today, the information about drug development, its uses and adverse effects travels from one end of the planet to the other and with amazing speed. Thus any serious adverse effect if reported with some drug, we would hear of it in a brief span of time.
- (2) *Increased cost of the treatment* - The cost of the drugs today seems to be rising in an exponential fashion. Despite their high price, drugs are often over prescribed by health professionals and over consumed by public. This increases the economic burden on the public and the Government. This can be greatly reduced by prescribing only those drugs which are absolutely necessary, to be given for needed duration taking cost into consideration.
- (3) *Drug Explosion* :- In recent years, an increase in the number of available drugs has complicated the choice of the appropriate agent for a particular indication.
- (4) *Fear of Development of Drug Resistance* :- The fear is not illogical that irrational drug use may lead to the premature demise of highly efficacious and life saving new antibacterial drugs due to development of resistance.

Bad prescription, habits lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient that too with a higher cost of the treatment, changing existing prescribing habits is very difficult, so good training is needed before poor habits get a chance to develop.

Rational Treatment

When you treat a patient, define carefully the patient's problem and translate it into diagnosis. Then one should specify the therapeutic objectives that help you in selecting your 'P' drug. Then choose a treatment of proven efficacy and safety from different alternatives. Before prescribing, check that (i) Are the active substance and the dosage form suitable for this patient; (ii) Is the standard dosage schedule suitable; and (iii) Is the standard duration of treatment suitable. Then one should start the treatment by writing an accurate prescription and providing the patient with clear information and instructions. Prescribing too many drugs means more and more exposure of the patient to adverse reactions and drug interaction. It is too inconvenient for the patient to take so many drugs. Under-prescribing is also a serious problem and in such cases the treatment may prove ineffective. Create a good doctor-patient relationship. Take time to give necessary instructions to the patient. Unfortunately in our country prescriptions and the instructions are written in English which hardly 2% of our population understands.

After some time monitor the results of the treatment, then only one can know that it has been successful. If the problem is solved, the treatment can be stopped. If not then re-examine the steps. There are 2 types of monitoring

- ▶ Passive monitoring - Where patient himself assess improvement or deterioration in the state of his disease and symptoms related to it.
- ▶ Active monitoring - Treating physician himself confirms the efficacy of the treatment.

What makes RDU difficult?

Lack of Information : Unlike many developed countries we do not have regular facility which provides us up-to-date, unbiased information on the currently used drugs. Current literature is not easily available to many interested practitioners. Majority of our practitioners rely on medical representatives and product information for updating their knowledge about drugs. No doubt, much of the contents of product information is valuable information and is factual. However, frequently there are differences between pharmaceutical concerns and the drug regulatory authorities in the interpretation of the data related to indications and safety. A large bulk of scientific data depicting negative results, adverse drug reactions etc. is seldom published.

The lucrative methods of sale promotion employed by the pharmaceutical industries and absence of well organized drug regulatory

authority. It is due to

Presence of large number of drugs in the market.

Prevalent belief that "every ill has a pill".

Reluctance of medical professionals to change their practices and

Taking any restriction as a threat to their freedom to prescribe.

Lack of diagnostic facilities- Correct diagnosis is an important step towards rational drug therapy. Doctors posted in remote areas have to face a lot of difficulty in reaching to a precise diagnosis and it is due to non availability of diagnostic facilities. It remains a prime cause that in order to treat a patient, they practice polypharmacy, an important cause of irrational drug use.

Faulty and un aimed training of Medical Graduates- Tendency to depend on diagnostic aids is increasing day by day in doctors. This clearly indicates that medical institutions are failing somewhere in generating clinical sense in medical graduates during their training. Medical graduates should be exposed more and more to clinically oriented problems rather than making them to mug-up theoretical aspects.

What are P-Drugs ?

These are the drugs one has chosen to prescribe regularly. They are your priority choice for given indications. The P-drug concept also includes the dosage forms, dosage schedule and duration of treatment. P-drugs vary from one doctor to another and from country to country because of varying availability and cost of the drugs. P-drug enables one to avoid repeated search for a good drug in daily practice. Thus the P-treatment is chosen on the basis of efficacy, safety, suitability and cost.

The way out

Teaching institutions, the drug industry, the drug controlling authorities, NGOs and the patient himself are responsible for promoting rational drug use. Following measures can be taken to cultivate rational drug use into habit.

- ▶ Each state should bring out it's own list of essential drugs according to diseases prevailing in that region and this list should be available at all the health centers and hospitals (SIHFW, Rajasthan published the EDL approved by State government in November, 2000 and it has been revised in 2005).
- ▶ Prepare guidelines for the use of certain groups of drugs like steroids, antibiotics, and anti-hypertensives.

- ▶ Identify and ban irrational fixed dose combinations.
- ▶ Establish an adverse drug reaction monitoring cell.
- ▶ Teaching institutions must critically evaluate the undergraduate and post graduate teaching programmes with more emphasis on judicious and discriminate use of drugs.
- ▶ Pharmaceutical industries may promote rational drug use by sharing more and more drug information with the government institutions and other authorised bodies.
- ▶ Patient should help in the compliance of physicians prescription and should keep away from self medication.

Rationality of fixed dose combinations: We have a large number of fixed dose combinations available in our country. Often these mixtures contain many unnecessary elements except for a few, most of such combinations are detrimental in following ways :

- ▶ Use of fixed dose combinations discourage the precise diagnosis.

Undue medication : All the components present in the F.D.C. may not be needed every time by the patient. These combinations unnecessarily increase the cost of treatment. Some times use of such combinations may result in harmful outcome for the patient. e.g. poly haematinics (containing iron, folic acid and vitamin B) if given to a patient with pernicious anaemia, folic acid present in it can worsen the subacute combined degeneration. Here patient needs only B₁₂. Administration of iron and folic acid in such patients is not only a sheer wastage but dangerous also.

Fixed dose combinations are acceptable only if: compliance is improved; the therapeutic effect is greater than the sum of the effects of each drug; the cost of the combination product is less than the sum of the individual products; and clinical documentation justifies the concomitant use of more than one drug.

How safe and rational is use of herbal drugs: A popular myth in minds of public about drugs is that whatever is chemical/synthetic is toxic while whatever is herbal is safe but the fact is that herbal remedies are not without side effects. The drug authority of India has recently introduced stringent criteria for licensing of herbal preparations.

Essential Drugs: Essential drugs are those that satisfy the health care needs of the majority of the population : they should therefore be available at all times in adequate amounts and in proper dosage forms. WHO's essential drug list is a list of the drugs required for day-to-day practice. The drugs are placed under

different categories with mention of usual strength of dosage form. The list contains roughly 300 drugs and has undergone changes with passage of time. These drugs are commonly prescribed.

The EDL serves as an important guide for purchasing and stocking drugs by hospitals. The list is particularly useful for countries which are not self sufficient in field of pharmaceuticals and have limited resources. In India, although many states edited their hospital formulary keeping in mind WHO's F.D.I., it was only in 1996, for the first time EDL at a national level was formulated. As stated earlier, State of Rajasthan brought out it's list of EDL only in the year 1999 and finally published it in 2000.

Advantages of the concept of essential drugs

- ▶ It ensures the rational use of drugs and limits the use of irrational and hazardous drugs and decreases the chances of adverse drug reactions.
- ▶ Improves the possibility of monitoring A.D.R. in patients.
- ▶ Prevents wastage of valuable resources on non essentials.
- ▶ It discourage the aggressive marketing of non-essential drugs.
- ▶ For patient, treatment become and more economical.
- ▶ It facilitate the dissemination of correction; formation about the drugs to health personnel and consumers.
- ▶ It helps in fixing the prices of the drugs.
- ▶ It makes quality control easier because of the limited number of drugs.

Why we need list of essential drugs: WHO recommended roughly 300 combinations in the list of essential drugs but in India we have around seventy thousand drugs in the market. This clearly indicates that most of the drugs are non-essential. For a practioner, it is very difficult to sort out a panacea out of this therapeutic jungle. Drugs marketed under trade names are expected to be more costly in comparison to their generic versions. There is a cut-throat competition in the market of hundreds and thousands of branded drugs available in the country. Pharmaceutical houses need lot of medical details and advertisement to popularize a particular brand of a product. This needs a lot of money and ultimately it is the consumer who has to pay for it. It is also a difficult task for the doctors to remember hundreds of different brand names of the same drug marketed by different companies. Drug and cosmetic act stipulate that the generic name of the drug is required to be given along with the brand name of the drug. EDL helps a doctor in choosing a right drug, for the right patient for the

right indication without much financial burden on the patient.

Guidelines for Labeling a Drug as Essential Drug: Essential drugs are important tools for treatment and prevention of common diseases. These should be of standard quality, stability and bio-availability. Cost effectiveness is an important point of consideration. The cost of the total treatment and not only the unit cost should be considered. When several drugs are available for the same condition, then select the drug and the dosage form that provides the highest benefit ratio. The drug which has been most thoroughly investigated should be given preference.

The list should be reviewed from time to time, New Drugs should be introduced only if they offer distinct advantage.

Factors that lead to poor patient compliance or non-compliance

- ▶ Taking a medicine several times a day i.e. multiple medicines, frequent dose regimens i.e. frequency and complexity or drug regimen.
- ▶ Various social or personal beliefs about the use of medications may be barriers to compliance.
- ▶ Certain diseases like hypertension and diabetes have no symptoms to remind them to take their medication.
- ▶ Some patients especially suffering from severe pain such as arthritis frequently alter the medication in the hope of finding a better drug, if the necessity to continue the therapy for the prescribed period after the acute symptoms have subsided is not exclaimed to the patient by the physician / pharmacist.
- ▶ Common errors of compliance may be of omission, dosage, timing, adding medications not prescribed or premature termination of drug therapy (may be due to relief of symptoms or cost). It may also be due to lack of information.
- ▶ In appearance of minor side effects the drug may be discontinued if the patient has already not been told that these are common and not to be feared.
- ▶ Errors and non-compliance occur more frequently at the extremes of age and in patients who live alone. it may be due to forgetfulness (unintentional non-compliance).
- ▶ Poor patient-doctor relationship (patient dissatisfaction with the doctor).

Patient compliance can be improved by :

- ▶ Giving psychological support "putting the ill at ease".
- ▶ Development of a routine for taking drug e.g. at meal times.
- ▶ Providing "information and education."
- ▶ Patient's active participation in the treatment.
- ▶ The importance of compliance, in other words the consequences of noncompliance, should be explained. The undesirable effect produced by underutilization as well as overutilization should be explained.
- ▶ Presenting instruction in a manner patient understands.
- ▶ Enhanced communication between the patient and doctor or pharmacist.
- ▶ Patient non-compliance (failure to adhere to the drug regiment) is a major cause of treatment failure.

Prescription Audit

The assessment of drug utilization is important for clinical, educational, and economical purpose. Setting standards and assuming the quality of care through performance review should become part of every day clinical practice. Medical audit oversees the observance of standards of medical treatment at all levels of health care delivery system. It is also defined as the evaluation of medical care in retrospect's through analysis of clinical records, to provide full benefits of medical knowledge effectively and rationally. The study of prescribing pattern is a component of medical audit which seeks monitoring, evaluation and necessary modifications in the prescribing practices of prescribers to achieve rational and cost effective medical care.

Department of Pharmacology, Dr. S.N. Medical College, Jodhpur took up the work of prescription audit at the behest of State government . It was taken up to assess the present status of prescribing trends in tertiary care center and to determine whether prescribing pattern in based on the concepts of rational therapeutics and utilize the results in evolving strategies for cost effective drug use. Fifty randomly selected prescriptions were analyzed every month. In order to provide broad base to the cross section, prescriptions were collected from different sources. Following short comings were observed by us :-

- ▶ Name of the patient not mentioned in the prescription.
- ▶ Age is an important determinant of dose calculations but often found missing.
- ▶ No clear and precise diagnosis mentioned.

- ▶ Body weight of the patient not mentioned even in children.
- ▶ In a number of prescriptions, 6 to 14 medicines were prescribed.
- ▶ Two drugs were prescribed which may interact with one another.
- ▶ In same prescription more than one NSAIDs and Vitamin-B Complex are prescribed in two different forms.
- ▶ In one or two prescription, two antibiotics of same group were prescribed.

In order to encourage ideal prescription, judicious, safe and economical treatment should be essential. Above said points may sound trivial but are of great significance. In summary it can be said that irrational use of drugs is an age-old problem. In olden times, it was largely due to lack of adequate knowledge. Reasons for Irrational Drug Use include (a) More than 60,000 drug formulations; (b) Many new 'ME-TOO' drugs flooding the market; (c) Availability of bannable drugs; (d) Use of drugs as substitute for diagnosis (e) Wrong beliefs; and (f) Reliance on Industry for therapeutic update.

Recommendations

- ▶ Latest edition of essential drug list should be available in all the wards and outdoors of all the hospitals.
- ▶ Official list of drugs and drug combinations banned by GoI should be available in all the wards and outdoors.
- ▶ It is very essential to discuss the short comings of the prescription with the doctor who has written it.

Postscript : Editor is tempted to quote Dr. L.K. Kothari who has prescribed five *golden rules* for rational use of drugs: (i) Restrict the number of drugs to the minimum necessary. (ii) Ensure the good quality of all prescribed drugs. (iii) Watch for cost-effectiveness to the patient. (iv) Explain the prescription properly to every patient. (v) Avoid drugs altogether when non-drug treatment can help.

The cost of drug treatment can be minimized by (a) picking the cheapest brand from amongst standard firms; (b) avoiding excess dosage, keeping in mind the low average weight of Indians. Even if a higher dose is safe, it may be economically wasteful and therapeutically unnecessary; and (c) choosing a cheap yet impressive placebo where one is needed.

Drug Control Organization in Rajasthan:

Medical and Health Department of Government of Rajasthan has a separate drug

control section. There are two Drug Controllers at state level, 17 Assistant Drug Controller and 45 Drug Inspectors. A drug testing laboratory is also functioning at state level which is managed by Deputy Director with the help of a Drug Analyst and 4 Assistant Drug Analysts. This cell has on its record 399 constructed units where drugs are stored. It includes 72 Blood Banks out of which 25 are managed by charitable trusts. By the end of 2006, blood storage facility was also made available at 19 places. Medicines were sold through 28154 retail counters as of 2006-07. Although 5911 inspections were conducted during 2006-07 but only 601 samples were collected, 479 licenses suspended but only one case of fake medicine was brought on record in the first nine months of 2006-07. This indicates that medical professionals need to be on toes to carry ahead the agenda of rational drug use.

Further Reading :

Kothari L.K.: My five Golden Rules for the Rational Use of Drugs; handout used in developing *Essential Drug List* in 1998-99 at SIHFW, Rajasthan.

Unfinished Agenda

Shiv Chandra Mathur

All Doctors working in Medical and Health Department in general and Medical Officers in particular are expected to be familiar with almost all national health program. Beside the detail of major programs given in preceding chapter, an overview of other health and related program is given in first section of this chapter. Second section indications on legislation with which Doctors should familiarize themselves. In last and third section, attention is drawn to couple of public health issues not covered so far.

Part -1 Programme

National Iodine Deficiency Disorder Control Program (NIDDCP)

Iodine is a micro nutrient which is required in the amount of 100-150 µgms daily for normal human growth and development. Deficiency of iodine results in mental retardation, deaf-mutism, dwarfism, goiter, abortion and stillbirth and neuromotor defects. Out of 275 districts surveyed in early nineties by Government of India, 235 districts were found to be afflicted with iodine deficiency problem.

Many of the districts of Rajasthan also have this problem. Goiter was reported to be prevalent in Kota (13.7%), Udaipur (10.9%) and Bikaner (22.9%) by GoI way back in 1989-90. Realizing the wider implications of iodine deficiency, Government of India upgraded the goiter control program to NIDDCP in 1992. Universalizing the iodization of salt is the key preventive strategy, PFA act was amended in 1988 directing that common salt should contain 30 ppm iodine at production level and 15 ppm at retail level. It is to ensure the quality control of iodated salt at consumption level that kits for 'on the spot' iodine tests are supplied to the field staff through CM&HO/ RCHO. Doctors are also expected to contribute to IEC on the subject of IDD. Unicef has supported the establishment of a cell to monitor NIDDCP activities in the Directorate of Health Services in Rajasthan.

National Program for Mental Health (NPMH)

Magnitude of mental illnesses in India is high. Various morbidity surveys have revealed that 18-20 persons per 1000 population suffer from mental disorders. Thus it can be estimated that as of 2007, at least 1-2 million people are afflicted with one or other mental health problem in Rajasthan. Pilot trial of the program in Sikar district (1996-97) by Psychiatric Centre, Jaipur advocated that as much priority should be given to mental health as to any common communicable disease.

NPMH was launched in 1982 by GoI. Mental Health Act-1987 was reviewed by central council of Health in 1998 for its forceful implementation. Basic objective of NPMH is to encourage the applications of mental health knowledge in general health care ensuring the availability of minimum mental health care for all. Activities of the program include orientation of various level of health functionaries in organizing effective delivery of mental health care. District health systems own a responsibility to develop effective linkages with Psychiatry developments of the nearby Medical Colleges.

National Cancer Control Program (NCCP)

Cancer is one of the ten leading cause of death in India. It is estimated that 1.5-2 million cases of cancer are there at any given point of time in India. Over 7 lakh new cases and 3 lakh deaths every year indicates the rising pool of cancer cases in our country. Since Rajasthan has more than 5% of national population, pool of cancer in the state can broadly be estimated. National Cancer Registry have also documented that leading sites of cancer have remained unchanged over the years. Thus oral cavity, lung, esophagus and stomach amongst the men and cervix, breast and oral cavity in the women are usual sites in the decreasing order of occurrence.

NCCP was launched education in general and curbing tobacco consumption in particular (primary prevention); early diagnosis and treatment of common cancers (Secondary prevention); subsequently strengthening the therapeutic services. Strategies adopted are developing the Oncology Wings in the Medical College hospitals (i.e. equipping with Cobalt Units); identifying and supporting regional cancer centers; financial assistance to NGOs to undertake IEC and early detection; supply and distribution of pain relief medicines, strengthening the cancer registry and monitoring of the program. Doctors are advised to keep in touch with Radiotherapy departments of nearby Medical

Colleges to acquaint themselves with the recent advances in NCCP.

National Diabetes Control Program (NDCP)

Epidemiological studies show 1-2% prevalence of diabetes mellitus in India. NDCP was launched in 1987 with the focus on early diagnosis to institute appropriate management, health education for Primary prevention and instituting rehabilitation to those who have physical handicap. So far the program has not gained as formal a shape as other vertical health programs have.

National School Health Program

In 2005-06, State Government directed to reactivate the School Health Program in Rajasthan, through the joint efforts of Medical and Health, Panchayati Raj and Education departments. It will cover all the primary schools. It covers the health examination to rule out any sickness and provide micronutrients to combat under nutrition. This includes giving Iron and Folic Acid (paediatric) continuously for 100 days; polyvitamin; calcium with vitamin D₃, vitamin C (50 mg) and albendazole as and where necessary. Medical officers are urged to take care of directions of Vitamin A prophylaxis, Diarrhoea control and Anemia control within the ambit of RCH and UIP. In the year 2006-07, the program was conducted in 69536 schools where appx. 62 lakh children were examined and 8.5 lakh were found to be suffering from one or other ailment showing high morbidity in school going age. Thus the program needs reinforcement.

Part -2 Acts

There are certain acts and laws which are needed in the health system. Thus health managers need to have their knowledge. Medical officers must familiarize themselves with following public health legislations:

Child Marriage Restraint Act, 1929

Drugs and Cosmetics Act, 1940

Indian Nursing Council Act, 1947

Minimum Wages Act, 1948

Prevention of Food Adulteration Act, 1954

Indian Medical Council Act, 1956

Maternity Benefit Act, 1961

Registration of Births and Deaths Act, 1969

Medical Termination of Pregnancy (MTP) Act, 1971

Narcotic Drugs and Psychotropic Substance Act, 1985

Juvenile Justice Act, 1986

Environment (Protection) Act, 1986

Epidemic Diseases Act, 1987

Mental Health Act, 1987

Transplantation of Human Organ Act, 1994

Prenatal Diagnostic Techniques (Regulation and Prevention of Misuse) PCPNDT Act, 1994

Biomedical Waste (Management and Handling) Rules, 1998

This book has already dealt with E.S.I. Act (Chapter - 18) and Consumer Protection Act (Chapter-20) to the requisite extent.

Part -3 Issues

Panchayati Raj Institutions (PRI):

Panchayats are an age old institution for governance at village level. In 1992, PRI were strengthened through enactment of 73rd constitutional amendment. They have been assigned 29 rural development activities including health and population stabilization. NRHM has brought an opportunity for PRIs to prove their potency for decentralized planning. They can play a critical role through village health and sanitation committee in evolving health plans. They have already come in picture in selecting ASHA as well as managing untied funds at subcenter level.

In Rajasthan, there are 9211 Gram Panchayats. Incidentally in each Gram Panchayat area, one health subcenter is certainly functioning.

They are expected to evolve village health plans within 2007-08 and carry on this process year after year. Medical Officer are expected to take in cognizance the elected representatives who matter at the peripheral level and develop an effective liaison with them in the interest of implementing public health

program.

Medical Audit

Medical audit is objective evaluation of the quality of medicare by physicians to detect deficiencies and improve it. This ensures collective accountability for quality care. It could be audit of management where equipment management, inventions and cost incurred in delivery of medical care is audited. It could be audit of prescriptions; morbidities/ mortality dealt in indoor settings; infection control within medical care establishments; functioning of ICU; or audit of tissue (e.g. blood, cornea or any organ to be transplanted) or it may be audit of ethical practices and compliance of laws related to medical care practice. Medical Officers are particularly expected to familiarize themselves with morbidity/ mortality audit.

This requires completion of documentation work on each bed-head ticket till the end point of the natural history of the disease which could be death, defection or disability. Retrieval of records in organized manner help in managing diseases at community level and curbing the costs of medical care. Knowledge on international classification of diseases (ICD) could be an asset. In fact health system development project in Rajasthan has envisaged that record of each indoor patient in secondary facility is retrieved by using ICD-tenth edition of WHO classification. A good audit system makes Doctors realize, (a) are we as good as we can be; (b) are our patients and relatives satisfied with us; and (c) how can we create a better reputation in the community.

Disaster Management

Another emerging area in public health is management of disaster. It implies moving beyond epidemic management, which in this book has been dealt in the chapter on Integrated Disease Surveillance Project. Major disaster in Rajasthan is drought and famine. Within last 25 years most of the districts of the state have faced drought. Famine relief work demands special involvement of medical department. It requires not merely providing medical care at work sites but also instituting effective interventions to prevent diseases like heat stroke, sunburns, pyoderma and seasonal diseases. Changing ecology also results into calamities like flood and earthquake. In 2006 only Barmer district faced a bad flood. Chances of earthquake can also not be denied. Emergencies created

through disrupted law and order situation, rail accidents and major accidents also demands organizing medical care as rapid responses. Doctors in public facilities are expected to take proactive measures to face such situations.

Medicare Relief Societies

NRHM throughout the country is advocating creation of *Rogi Kalyan Samitis* in all secondary level facilities. In Rajasthan incidentally the Medicare Relief Societies (RMRS) were already functioning in most of the hospitals and CHCs. RMRS is a registered body under cooperative society registration act.

They have been created with an intention to decentralize the procurement of medicines and equipment. Autonomy provided to the service delivery system at peripheral level through RMRS helps patients in getting quality care and enhances the confidence of care givers. Effective running of societies demands collaborative skills from the office bearers. Thus each Doctor working in the medical department is expected to acquaint him or her with the directives for the functioning of RMRS. In recent years NRHM has provided seed money to all CHCs and most of the PHCs to start societies. Their long term functioning would depend upon collection through user charge and its effective utilization in the interest of hospital functioning.

Health Insurance

People who have the risk of a certain event contribute a small amount towards a health insurance fund. This fund is then used to treat patients who experience an illness. Thus essentials in a health insurance program are prepayment and risk pooling. People pay when they are healthy and get the return in terms of financial support when they fall sick.

Basic elements of health insurance runs between three parties. While community pays premium to the Insurer, the latter pays it to the provider to meet the cost in caring the community. CGHS and ESI schemes forms the typical example of social insurance.

Mediclaim is a private health insurance. Under the Health System Projects as well as NRHM, there are proposals to initiate community health insurance schemes. Doctors working in peripheral facilities must acquaint themselves on different health insurance schemes in vogue.

Training

Training is a process of self development. It concurrently adds to the capacity of the organization. In a public system like Medical and Health Department of the state government, an employee works for the department on an average for 35 years. Eventually it becomes mandatory for the department to consistently enhance the capacity of its employees. It would spontaneously enhance the productivity of the department. With this assumption, provision for in-service trainings has been kept. State has a well organized hierarchy of training institutes under the flagship of SIHFW, Rajasthan. There are two HFWTCs (while Ajmer covers all districts of Ajmer, Udaipur and Jodhpur division, remaining four divisions are covered by Jaipur); 27 ANMTCs; 15 hospitals catering to general nursing courses. Training to lab technicians and radiographers are provided at all the six Medical Colleges hospitals of the State Government.

Current trend of conducting training in compartments of RHSDP, RSACS, RNTCP, INMCI, RCH-2, Routine Immunization, etc. also damages the tempo and spirit of trainings. Medical and Health department has developed a health sector specific training policy according to which as far as possible in-service trainings should be merged into one package. It is only through a collective responsibility that we can converge and consolidate the trainings.

Accidents and Trauma Prevention

With increasing number of vehicles everywhere, the number of road accidents are increasing everywhere. It is more so on highway where heavy motor vehicles with high speed plies. In smaller town use of two wheelers without safety precautions adds to the occurrence of accidents. Increasing number of industrial area also adds to the accidents. In this background, it is reiterated that Doctors owe a responsibility to generate a sense of safe communities in their neighbourhood. This can be elicited by exploiting the potential of fire prevention agency, schools, municipalities, police, insurance and civil society organizations like Rotarians, Lions, Scout and Red Cross. State Government has provided additional inputs to the facilities like CHC and PHC on the highway to upgrade them as trauma management centers.

Occupational Health

Health in this state - unlike Maharashtra, west Bengal and southern states - has so far not prepared itself to this new challenge. Although E.S.I. scheme takes care of industrial workers, but it would be pertinent to mention that industrial health in Rajasthan is at a primitive stage.

Already increasing mining has led to production of slavery in a large area; dye-industry resulting in water pollution. With so many RIICO industrial area and special economic zones coming up around big cities, there is a need to be proactive on the front of persuading the agenda of occupational health.

Swasthya Sakhi Project

Although a full chapter on NRHM and RCH are given in the beginning of this book, but before we close, we may bring to the notice of Medical Officers an innovation undertaken within NRHM. This pertains to deploying accredited activists on a small scale in identified clusters in difficult area. Basic difference between ASHA everywhere and *Swasthya Sakhi* in one cluster (Sector PHC) each in five districts is that *Swasthya Sakhi* designate will go through a long term nine months training, she will learn the issue of health, development and women empowerment through four modules vetted by National Institute of Open School (NIOS). Subsequently these ladies will appear in an exam to be conducted by NIOS. On passing they will be awarded a certificate. They would be further supported for three years to become self reliant in the delivery of primary health care including containment of disease determinants in their neighbourhood. This project is being implemented in a sector in Kumher (Bharatpur); Harsani (Barmer); Losal (Sikar); Jhumki (Jhalawar) and Kalinjara (Banswara). In all 350 *Swasthya Sakhis* designate have been registered at the end of 2006 who would continue to work for next three years. They would provide an opportunity to compare the process followed in developing the capacity of ASHA.

Public Private Partnership

Wave of privatization in every walk of life has taken off leaps and bounds since the wall of Berlin was broken in November 1989. Within two years i.e. 1991, the World Bank report on 'Investing in Health' vehemently indicated the need to privatize. And over the one and half decade, the privatization in health sector has gained the strong roots. Starting from tertiary level medical care is advocated.

Health Sector in Rajasthan has envisaged private partnership in a big way. The NRHM document on public-private partnership clearly states that. “Public private partnership under National Rural Health Mission would not imply transfer of government responsibility of providing health care but instead it means would not imply transfer of government responsibility of providing health care but instead it means synergizing the efforts of the private sector to provide quality, accessible and affordable comprehensive health care facilities to people”. The objective of these partnership is to ensure that it would enhance availability and affordable health care to communities. It then proceeds to state that “PPP initiatives are intended to improve access to good quality health care services, promote exchange of skills and expertise between the public and private sector and mobilize additional resources for healthcare activities. Proposals to involve private sector are also envisaged in RHSDP in the third phase of NACP through RSACS as well as in RNTCP. Medical officers in the field are expected to keep vigilance on the private facilities around them to explore the possibility of partnership.

Help in Medical Care:

Persons living below poverty line are given special support when in dire need through Chief Ministers Life Saving Relief Fund. This fund is available to the cases referred to AIIMS. Divisional Commissioners have been empowered to issue the sanctions. Chief Ministers help is also available to the persons having income less than Rs. 24000/- per annum, when they are in need of surgery like heart valve replacement, kidney transplant and chemotherapy for cancer. This help is in addition to the support provided by RMRS to the BPL card holders. Doctors are advised to keep themselves equipped with the latest guidelines issued by the State Government from time to time.

Since medical care implies caring all morbidities, thus it would be appropriate to mention at this juncture that a Mobile Surgical Unit as a separate organization continues to function in addition to 12933 public health facilities. This is a 500 bedded hospital. This also controls 100 bedded Chittranjan Mobile Units at Jodhpur and Udaipur respectively.

Further Readings:

1. Mathur, Shiv Chandra and Dua A.S., Human Resources for Health in the report of National Commission on Macroeconomics and Health; MOHFW, GOI, 2005.

Appendices

Demographic Profile of Rajasthan

Local Area	-	3.42 lakh sq. kms.
Population (Census 2001)	-	56507188
Urban Population (Census 2001)	-	23.39%
Birth Rate (SRS-2005)	-	28.6 per 1000 population
Death Rate (SRS-2005)	-	7.0 per 1000 population
Infant Mortality Rate (SRS-2003)	-	75 per 1000 live births
NFHS (2005-06)	-	65 per 1000 live births
Maternal Mortality Rate (SRS-2003)	-	445 per 1000 live births
Population Density (Census, 2001)	-	165 per square
Literacy Rate (Census, 2001)	-	60.4%

	Highest	Lowest
Birth Rate (DLHS 2002, 04, GoI)	32.07 (Jaisalmer)	18.35 (Jaipur)
Death Rate (DLHS 2002, 04, GoI)	805 (Udaipur)	4.21 (Churu)
Infant Mortality Rate (DLHS 2002, 04, GoI)	96.1 (Rajsamand)	41.73 (Jhunjhunu)
Mean Age at Marriage (DLHS 2002, 04, GoI)	19.0 (Dungarpur)	15.9 (Jaisalmer)
CPR as on 31.3.06 (demography cell of DM&HS) (State average in 45.8)	71% (Hanumangarh)	34.1% (Bharatpur)
Sex Ratio (Census 2001) (State average is 921)	1022 (Dungarpur)	821 (Jaisalmer)
Child Sex Ratio (Census 2001) (State average is 910)	964 (Banswara)	850 (Ganganagar)
Total Literacy (Census 2001) (State average is 60.4)	73.53 (Kota)	44.63 (Banswara)
Female Literacy (Census 2001) (State average is 43.83)	60.43 (Kota)	27.8 (Jalore)

Note : Selected data from all three NFHS for Rajasthan are available in chapter 3, page 16.

Districts Demography and Health Facilities Appendix-1(a)

Districts	Population as on 1st March 2007	Population Density*	Female Literacy Rate*	Child Sex Ratio*	CHCs @	PHCs @	SCs @
Ganganagar	2042200	163	52.44	852	11	40	350
Hanumangarh	1731400	157	49.56	873	8	39	277
Bikaner	1909400	61	42.03	915	8	44	298
Churu	2197200	114	53.35	912	10	60	352
Jhunjhunu	2193000	323	59.51	967	12	72	424
Alwar	3444300	357	43.28	888	19	76	480
Bharatpur	2406800	414	43.56	875	11	54	374
Dholpur	1121400	324	41.84	859	5	21	159
Karauli	1377100	218	44.39	876	5	25	226
Sawaimadhopur	1274300	248	35.17	900	5	23	203
Dausa	1504700	384	42.32	900	7	27	237
Jaipur	6109200	471	55.52	877	17	94	513
Sikar	2626200	296	56.11	882	16	67	494
Nagaur	3191400	157	39.67	920	17	87	606
Jodhpur	3299500	126	38.64	920	14	69	498
Jaisalmer	578200	13	32.05	867	5	14	137
Barmer	2250300	69	43.45	922	13	59	469
Jalore	1656500	136	27.80	924	8	50	358
Sirohi	970100	166	37.15	918	6	23	187
Pali	2078900	147	36.48	927	15	65	419
Ajmer	2494700	257	48.86	923	10	46	289
Tonk	1381400	168	32.15	922	7	45	249
Bundi	1096800	173	37.79	908	6	25	178
Bhilwara	2297800	192	33.48	951	15	64	409
Rajsmant	1123900	256	37.59	935	7	35	215
Udaipur	3026700	196	43.26	944	18	74	556
Dungarpur	1261900	294	31.77	963	7	37	305
Banswara	1712000	298	28.43	972	12	48	340
Chittorgarh	2059800	166	36.39	927	13	56	402
Kota	1794700	288	60.43	902	9	29	162
Baran	1167100	146	41.55	918	8	34	213
Jhalawar	1346000	190	40.02	929	13	28	233
Total	64724900	165	43.85	921	337	1530	10612

* Census 2001

@ as on 31st December 2006

Health Facilities in Rajasthan

(as on 31.12.2006)

Total Health Facilities	12933
Health Facility in State/area	One in each 26 sq. Km
Health Facility/ Population	4369
Hospitals	121
District Hospitals	28
Satellite Hospitals	8
Medical College Hospitals	28
Dispensaries	202
MCH Centres	118
CHC's	337
PHCs	1499
Urban PHC	31
Health Subcenters	10612
FP Centers	293
Doctors in Government	6264
Doctors including Dentists in Sate Govt.	6550
Non Gazetted Manpower in Medical Deptt.	56946
Doctor/ Population	8622
Indoor Beds in Govt. Facilities	41185
Indoor Bed/Population	1372
Budget of Health in 2006-07	Rs. 871.71 crore
Per Person Budget	Rs. 154.36 per person
SIHFW	1
HFWTC's	2
ANMTC's	27
GNM training Centers	15

Evolution of Health Care Services

(i) Five year Plans

I Plan (1951-56)	:	Implementing Bhore Committee CDP; NMCP; NLCP; NFPP
II Plan (1956-61)	:	Expansion of Existing Health Services
III Plan (1961-66)	:	NTCP; Deptt. of F.P. was created
IV Plan (1969-74)	:	ANP; Vit.A introduced; MPW Scheme
V Plan (1974-79)	:	Emphasis on Primary Health Care CHW Scheme, ICDS
VI Plan (1980-85)	:	National Health Policy -1983; Specialist Services in each block, ROME scheme
VII Plan (1985-90)	:	Promotion of Primary Health Care UIP
VIII Plan (1992-97)	:	CSSM Project
IX Plan (1997-2002)	:	RCH Project, NACP-2, RNTCP
X Plan (2002-07)	:	RCH-2, ISDP, NACP-3, NVBDCP; NRHM
XI Plan (2007-12)	:	Schemes and Projects of X Plan to be reinforced Privatization to be regulated, NACP, Tele Medicine to be expanded

Evolution of Health Care Services

(ii) Committees

1946	:	Health Survey and Development Committee Bhore - PHC for 40000 in Short Term, 10 to 20000 in long term.
1961	:	Health Survey and Planning Committee Mudaliar Upgradation and Strengthening of existing PHCs.
1964	:	Mukharjee Committee: RFPC in each block, SC for 10000 with ANM, LHV over every 4 ANM, Additional M.O. at each PHC.
1974	:	Kartar Singh Committee: MPW Scheme.
1975	:	Shrivastava Committee: Emphasis on Training of HA's/ CHW.
1977	:	Concept of Primary Health Care: executed through CHV Scheme.
1981	:	Working Group set up by Planning Commission to set goals for HFA by 2000.
1983	:	National Health Policy
2000	:	National Population Policy
2002	:	National Health Policy (Revised)
2005	:	Task Groups of NRHM

Evolution of Health Care Services

(iii) Launch of National Programs

1949	-	Sexual Transmitted Disease Program
1951	-	BCG Vaccination Program
1952	-	Community Development Program
1953	-	National Malaria Control Program
1953	-	National Family Planning Program
1954	-	National Water Supply and Sanitation Program
1955	-	National Leprosy Control Program
1955	-	National Filaria Control Program
1958	-	National Malaria Eradication Program
1962	-	National Small Pox Eradication Program
1962	-	School Health Program:
1962	-	National Goiter Control Program
1963	-	Applied Nutritional Program
1963	-	National Trachoma Control Program
1963	-	Expanded Family Planning Program
1968	-	National Trachoma Control Program
1970	-	All India Hospital Post Partum Program
1970	-	Vitamin A Prophylaxis Program
1970	-	Nutrition Anemia Prophylaxis Program
1972	-	Accelerated Rural Water Supply Program
1973	-	National Program of Minimum Needs
1975	-	Integrated Child Development Scheme (ICDP)
1975	-	National Cancer Control Program
1976	-	National Program for Prevention of Visual Impairment and Control of Blindness
1977	-	Rural Health Scheme
1977	-	Re-oriented Medical Education (ROME)
1977	-	Modified Plan of Operation (MPO) in Malaria
1978	-	Expanded Program on Immunization (EPI)
1979	-	National Guinea worm Eradication Program
1981	-	National Diarrhoea Disease Control Program
1982	-	National Mental Health Program
1983	-	National Leprosy Eradication Program
1985	-	Universal Immunization Program (UIP)
1987	-	New 20 Point Program
1987	-	National Diabetes Control Program
1987	-	National AIDS Control Program
1989	-	Blood Safety Program
1992	-	Child Survival and Safe Motherhood Program
1997	-	Reproductive and Child Health Program

Millennium Development Goals

- | | | |
|--------|---|--|
| Goal 1 | - | Eradicate extreme poverty and hunger |
| Goal 2 | - | Achieve universal primary education |
| Goal 3 | - | Promote gender equality and empower women |
| Goal 4 | - | Reduce child mortality |
| Goal 5 | - | Improve Maternal Health |
| Goal 6 | - | Combat HIV/AIDS, malaria and other disease |
| Goal 7 | - | Ensure environmental sustainability |
| Goal 8 | - | Develop a global partnership for development |

XI Five year Plan-Goals

(Monitorable Socio-Economic targets)

Health

- Reduce infant mortality rate (IMR) to 28 and maternal ratio (MMR) to 1 per 1,000 live births.
- Reduce Total fertility Rate to 2.1
- Provide clean drinking water for all by 2009 and ensure that there are no slip-backs by the end of the 11th Plan.
- Reduce malnutrition among children of age group 0-3 to half its present level.
- Reduce anemia among women and girls by 50 percent by the end of the 11th Plan.

Women and Children

- Raise the sex ratio for age group 0-6 to 935 by 2011-12 and to 950 by 2016-17
- Ensure that at least 33 percent of the direct and indirect beneficiaries of all government schemes are women and girl children.
- Ensure that all children enjoy a safe childhood, without any compulsion to work.

Environment

- Increase forest and tree cover by 5 percentage points.
- Attain WHO standards of air quality in all major cities by 2011-12.
- Treat all urban waste water by 2011-12 to clean river waters.
- Increase energy efficiency by 20 percentage points by 2016-17.

(Source : Yojana, April 2007)

Contributors

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Lectures from Dr Shiv Chandra Mathur available on Internet
(in PowerPoint Presentation)

<http://www.pitt.edu/~super1/lecture/lec25251/index.htm> Health Care Delivery: Concepts and Issues

<http://www.pitt.edu/~super1/lecture/lec25211/index.htm> Health Services in Sweden

<http://www.pitt.edu/~super1/lecture/lec21771/index.htm> Health Sector Reforms

<http://www.pitt.edu/~super1/lecture/lec21761/index.htm> Epidemiological Transition

<http://www.pitt.edu/~super1/lecture/lec20541/index.htm> National Rural Health Mission India

<http://www.pitt.edu/~super1/lecture/lec11951/index.htm> Adolescents and Reproductive Health

<http://www.pitt.edu/~super1/lecture/lec11941/index.htm> Violence against Women and Reproductive Health

<http://www.pitt.edu/~super1/lecture/lec9871/index.htm> Reproductive and Child Health in India

<http://www.pitt.edu/~super1/lecture/lec3971/index.htm> Population Policy at National and State Level

<http://www.pitt.edu/~super1/lecture/lec3521/index.htm> Epidemiology of Endemic Fluorosis

About the Editor



Dr. Shiv Chandra Mathur M.B.B.S, M.D. FIAPSM, PG Diploma in Journalism; Diploma in Rural Development; Diploma in UN & International Understanding.

Prof. Shiv Chandra is a public health specialist. He was awarded WHO fellowship in 1981; travel fellowship by SIDA in 1994, and merit award by Govt. of India in 1996. He has gone through one and half year long UNFPA sponsored course on Enhancing Training Competence of Trainers in 1994-95. He has also gone through a three phase course on Sexual and Reproductive Health and Rights from Uppsala University, Sweden in 1998-99.

Working on different faculty positions in the four Medical Colleges of Rajasthan, Prof. Shiv Chandra undertook a number of research studies on operations of health services. He has also been associated with National Technology submission on 'Fluorosis Control' for a long time. He has participated in many academic programs covering Epidemiology, Nutrition, Educational Technology and Injury control. He has published 50 papers and two monographs on Public Health. His writings on primary health care in Hindi received merit award from Government of India in 1996. He has provided consultancy to several organizations including bilateral and UN agencies.

Besides leading the PSM Department as Professor and Head, Dr. Shiv Chandra Mathur has led UNFPA supported Health Management Training and Research wing in HCM RIPA, Jaipur for two years. He adroitly facilitate sessions on Organization Behavior and Public Health in MDP's and induction trainings. He is visiting faculty to several Management Institutes and Universities. He is also on the panel of Examiners/ Experts of various universities and Public Service Commissions. He is also associated with Public Health Movement and Medico-Friend Circle of India. He evinces keen interest in developing human resources for health.

Since June 2002, Dr. Shiv Chandra is Director of SIHFW, Rajasthan, Jaipur.

Publications from SIHFW, Rajasthan

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2. Women's Right to Life and Health Process Document (Unicef supported study) 2003.
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6. Coverage Evaluation Survey of Routine Immunization in Tonk District -2006
7. Inter-sectoral Coordination for Health and Development by T.P. Jain, TRS No. 1, SIHFW, 2005
8. Medical Education: Life Long Study of Man in relation to his health & disease by L.K. Kothari, TRS No. 2, SIHFW, 2005
9. Medical Education: Search for Destination by Dr. Shiv Chandra Mathur, TRS No. 3, SIHFW, 2005
10. Women & Health: A sector reform perspective for Rajasthan by Prashakha Mathur and Shikhar Agarwal, TRS No. 4, SIHFW, 2005
11. Financial Management in Health Sector. What Techno-Managers are supposed to know by R.K. Sharma, TRS No.5, SIHFW, 2005
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